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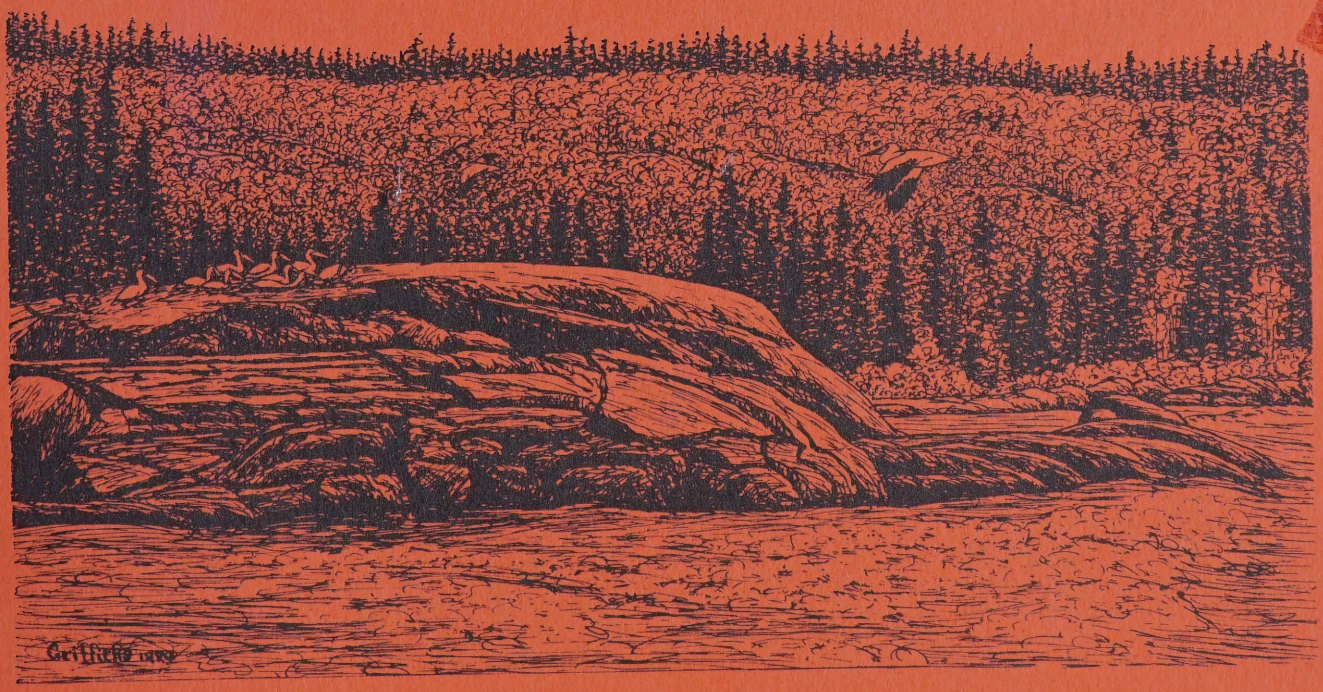

vol.10no.4 dec., 1980

ALBERTA NATURALIST

VOLUME 10 NUMBER 4 DECEMBER 1980

The Alberta Naturalist is a quarterly publication of the Federation of Alberta Naturalists, with an additional annual research supplement and occasional special issues.

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ISSN 0318-5440
Postage paid at Edmonton Alberta, under
Second Class mail registration number
3604

COVER STORY: THE SLAVE RIVER PELICANS

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Whether beating sedately across an empty sky or circling on an invisible thermal, the White Pelican *(Pelecanus erythrorhynchos)* aloft is a majestic bird, brilliant white except for jet black wing tips. With a wingspread of just over 3 metres, it is also one of the largest flying birds in the world today. Floating serenely on the water it is equally impressive. It is further a bird of stable lineage whose similar ancestors can be dated back close to 70 million years.

Worldwide there are 5 species of "white pelican" (the Brown Pelican *(P. occidentalis)* raises the total to 6). The North American White Pelican is limited to this continent, with its breeding range extending over much of the western half from central Mexico to northern Alberta, as it did prior to European settlement. However, it no longer nests in Minnesota or Wisconsin, and the number and size of active breeding colonies has declined appreciably during the past century or so. Other pelican species are also showing marked population reductions. Between 1900 and 1969 a total of 21 White Pelican colonies in Canada disappeared (Vermeer 1970 ; see also Vermeer 1969). Some of these were small and some may have been lost for entirely natural reasons such as fluctuating water levels, but undoubtedly human disturbance is becoming an increasing threat as more previously remote lakes are used commercially or recreationally. The current known distribution of pelican colonies in Canada is shown in Figure 1.

For decades scientists have recognized that the White Pelican is very sensitive to human intrusion and unaccustomed noise (as for example, from low-flying aircraft) during most of the nesting cycle--both eggs and young will be abandoned. Pelicans are long-lived birds, so a disruption of a year or two may not be serious if the birds can find an alternate site nearby to reestablish successful breeding. An Alberta example of this response is the colony at Namur Lake which moved in 1976 to Birch Lake, about 30 km south, after disturbance, but has now returned to Namur Lake (attempted breeding in 1980). However, much still remains to be learned about the birds' psychological response to disturbance and their long-term reaction to being prevented from using a traditional site. Perhaps populations in regions of fluctuating lake levels (such as on the Great Plains) are more flexible than those occupying sites that are stable for long periods. Thorough research of this aspect of pelican behaviour is difficult--are we justified in jeopardizing several colonies by disturbing them experimentally? I personally think not, yet cases of unintentional or natural disturbance are rarely adequately enough documented to provide a predictive base for future situations.

Nevertheless, when it became obvious that White Pelican numbers were in serious decline during the 1920's, refuges were created at several of the largest United States colonies (Bent 1922). The first Canadian colony to be accorded full protection, in 1927, was the one at Lavellee Lake in Prince Albert National Park, Saskatchewan. Finally, in 1963 Manitoba and Saskatchewan passed legislation to preserve all their remaining pelican and

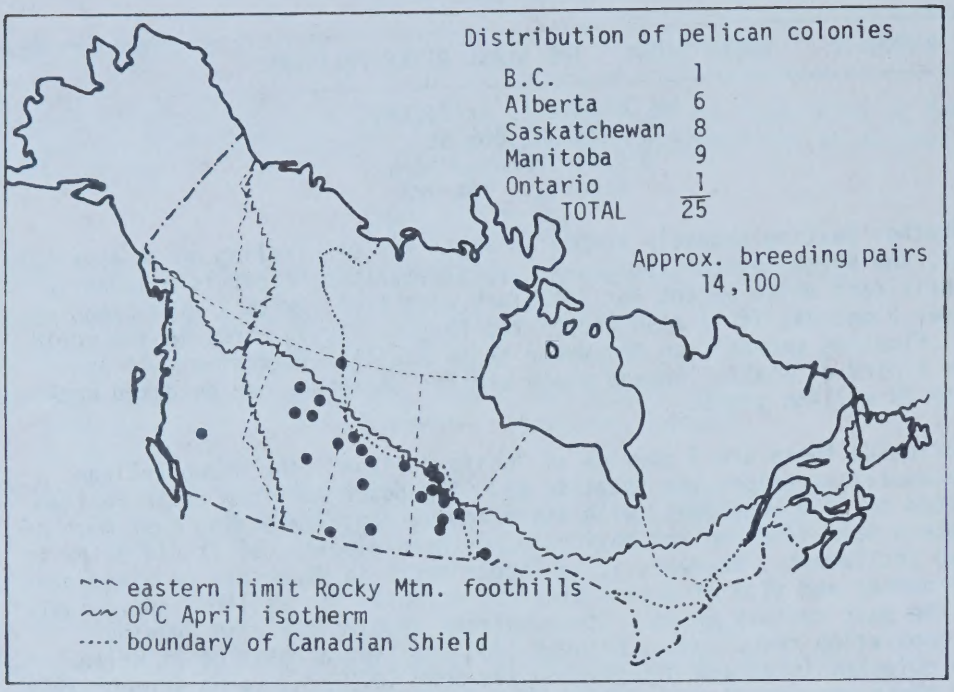

Fig. 1. Breeding colonies of white pelicans in Canada (redrawn from Vermeer, 1970; Alberta colonies updated to 1980)

cormorant colonies, although enforcement was not immediately universal, especially where it was felt that pelicans competed with a commercial fishery (Carson 1966). Not until 1977 did Alberta enact legislation to secure its last few colonies. By that time at least 8 colonies, accounting for close to 600 breeding pairs, had been lost. Then,

> The Government of Alberta has designated White Pelicans and Double-crested Cormorants as endangered species. Six nesting sites have been established as "Prohibited Access Wildlife Areas." The new regulations prohibit anyone from entering upon or approaching within one -half mile of the designated islands on these lakes from 15 April to 15 September, the basic nesting and rearing period.

In 1978 the designated lakes were: Lake Newell (no active nests in 1978, but adults still present), Beaverhill Lake (the first successful nesting since 1930 occurred in 1980), Lower Therien Lake (cormorants only), Birch Lake (between 50-100 nests), Namur Lake (no nesting in 1978, but several pairs did attempt breeding in 1979), and Wadlin Lake (less than 50 breeding pairs, 1978). Additionally, a significant breeding group (less than 100 nests in 1978) was present on Utikuma Lake, and a larger colony (approximately 225 breeding pairs in 1978) was rediscovered in 1978 on Pelican Lake (Markham and Brechtel 1978). These last two lakes are north and northeast of Lesser Slave

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Lake, and are now protected under the above legislation. However, the Slave River colony continues to remain outside, a "special case."

Although in terms of numbers of individuals and colonies the Canadian portion of the total White Pelican population seems stable and reasonably secure, the extreme susceptibility of the birds to disturbance places all but the National Park colony at risk from resource development or any other land use change. Furthermore, pelicans are not listed in the Migratory Birds Convention Act, and so, until the passage of recent federal legislation could be harassed or killed away from the breeding colony, or before and after the nesting season. However, on 18 January 1980 the White Pelican was placed on the list of "threatened birds" under the Canada Wildlife Act. Accordingly,

> The Minister of the Environment hereby gives public notice that the species of fauna hereafter listed are either in imminent danger of extinction or threatened with possible extinction and therefore it is absolutely forbidden to hunt, be in possession, pursue, worry, stalk, trap or molest them unless provided by Statutes or Regulations.

With the above as background, I will now look at the Slave River pelicans in detail. The colony is one of three that are each unique. The birds at Mountain Rapids on the Slave are the farthest north (almost 60°N) and the only White Pelicans nesting on a river, and an extremely turbulent and silt-laden one at that. Of the other two unique colonies, the one on an island in Laguna Madre, off the southwest coast of Texas, is the only marine colony, and the one on a lake island in central Mexico, not discovered until 1974, is the most southerly and apparently nests in winter (Laycock 1979). These three groups are of utmost importance to preserve because they exhibit successful behaviour that deviates from the "norm" for the species.

The first written record of the Slave River pelican colony appears in Alexander Mackenzie's journal entry for 5 June, 1789. Even then it was well known to his Indian guides, so it is safe to estimate the birds have been nesting on the river continuously for at least 300 years.

At first glance islands set in the maelstrom of rapids would seem entirely unsuitable breeding habitat for the White Pelican. However, the birds succeed well. On a visit in late June 1907, the naturalist Ernest Thompson Seton counted a total of 80 active nests. The sparse vegetation of the humped granite islands shelters the eggs and young chicks while expanses of smooth rock are ideal for loafing, taking off and landing. Once the ice has gone in spring there is no danger from land predators.

The season begins with the arrival of 30-45 pairs of adult pelicans in the second or third week of April. Soon after the river is free of ice, nest construction at one of the nesting islands (Figure 2), is begun with little delay, for the long incubation and fledging period of approximately 3½ months means that young will not be flying until late August. In fact it is only the early break-up of the river that permits such northerly breeding.

As with all colonial species, the nesting cycle is highly synchronized. The typical clutch of two eggs is laid during the second week of May, and a month later, after incubation by both parents, the chicks begin to hatch. At first they are naked and helpless and are fed by regurgitation. At this

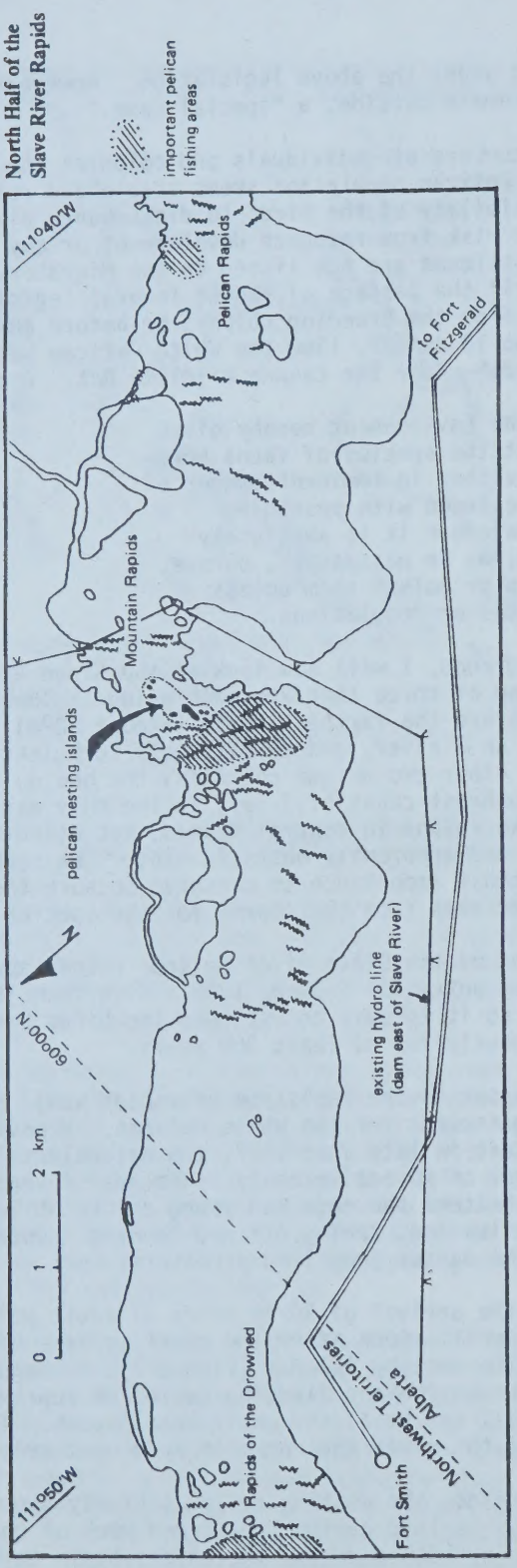

Figure 2. North half of the Slave River rapids.

stage if there is appreciable difference in size or vigour between the two nestlings, the smaller and weaker rarely survives, since they must help themselves to the food in the parent's pouch. By three weeks of age the young are thickly covered with greyish-white down and able to walk, at which time they leave their nests and gather in groups called "pods," although each chick is still fed by its own parents.

Somehow the adult pelicans manage to fish successfully in the river, often taking lampreys. Unlike their lake counterparts, they nearly always feed alone rather than co-operating to herd a school of fish into shallows.

Toward the end of August the adults perch on offshore rocks, thus compelling their offspring to swim for their food. Soon the young birds are learning the skills of river fishing, and once these are mastered the adults show less and less parental attention, although they also encourage the young to begin flying. During September the pelicans gradually leave the rapids on their southerly migration, with the juveniles being the last to depart.

Despite what is now known about the Slave River pelican colony after several years of close observation (beginning in 1974), a number of intriguing questions remain: how many species of fish do the pelicans eat during the summer? Is all their fishing done on the river? What is the origin of the 200 to 400 pelicans who appear every year at the colony about mid-June, remain for two to three weeks, sometimes begin nests, and then mysteriously disappear? From where do the few banded pelicans which arrive with the others and are occasionally one of a breeding pair originate? What is the migration route of the Slave River population, and where do they winter? At this season do they feed like other pelicans in lakes and offshore shallows? Since adults may live as long as 60 years, what is the fate of each year's Slave River progeny as they mature? Do some at least pair with birds from other colonies?

Perhaps the most important question at the moment is, however, will the Slave River pelicans escape disaster long enough for even some of these questions to be studied? Early figures for the size of the colony are few, but we know that in the first decade of the 1900's there were approximately 80 pairs. In 1967 the count was only 50. By the early 1970's it had dropped to 30, primarily because of disturbance from numerous "sight-seeing" visits close to the rookery, many of which were by helicopter. This is when the Pelican Portage Group became active and was instrumental in having local regulations formulated and enforced. Since 1974 an annual NOTAM (Notice to all Airmen) forbids aircraft to pass near the nesting colony at an altitude less than 700 m, while guided trips to viewing points along the main river bank near Fort Smith allow visitors to observe the pelicans without disturbing them. During the past couple of years the number of nesters has begun to increase and in 1980 a total of 31 young were fledged from 44 nests. This is a high success rate, considering that usually only one young per nest survives to three weeks. Given time and a continuance of the present level of protection it is not unreasonable to expect a return to an 80 pair breeding colony.

But a new turn of events again threatens the entire colony. The hydro-power potential of the Slave River rapids has long been known, and since 1944 a provincial "Hydro Reserve" has effectively blocked the creation of a wildlife sanctuary or ecological reserve, which could protect the pelican colony in perpetuity. Until it is lifted, the Hydro Reserve takes precedence

over any other land disposition. And the prospects of it being lifted now seem unlikely. In 1980 the Alberta government began a 2-year hydro -feasibility study (conducted jointly by Environment and Utilities/Telephones). Until the resulting report is released in late 1982 it will not be known whether or not development of a dam and generating station will be recommended. However, if the recommendation is favourable, we can be almost certain the Slave River pelican colony will be lost, as well as yet another major wild river (such rivers are rapidly becoming an "endangered landscape" in this country!). There are potentially adverse downstream effects, particularly on the productive Slave River Delta, while upstream the reservoir could cause flooding in eastern Wood Buffalo National Park (Parks Canada has just announced an EARP--Environmental Assessment Review Program--will be conducted concurrently with the feasibility study). The actual dam site could be either Rapids-of-the-Drowned or Mountain Rapids. The former would result in innundation of all the river islands, while the latter would be less than 1 km above the islands used presently by the pelicans. The impact of the long distance transmission lines also must be considered, especially the crossing of the Peace-Athabasca Delta. Here the tall towers and miles of wire would not only be a visual blight but also a definite hazard to migrating waterfowl. Added to all this, the native people who still depend heavily on the living resources of the region face disruption of this resource base and an unwanted change in their way of life.

Remoteness from markets and other developments no longer seems to be a barrier to hydro projects, and with resource exploitation rapidly pushing northwards, such remoteness will soon be past history. I feel it will be a tragedy if Canadians as a people, and particularly Albertans, allow such a magnificent wild river as the Slave to become past history and at the same time risk the loss of its unique White Pelicans.

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A MISPLACED MOUNTAIN GOAT BIRTH

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That Mountain Goats *(Oreamnos americanus)* spend the majority of their time in rugged, isolated terrain has been well documented in the limited literature available concerning this species (Saunders 1955; Hjeljord 1973). At parturition, this type of behaviour is especially valuable since the young are particularly susceptible to predation at this time. This note describes an incident of a seemingly displaced birth, adjacent to a major thoroughfare through Banff National Park, Alberta.

On 28 May 1979, while en route to Banff along Highway 93, 9 km south of Sunwapta Pass at an elevation of 1645 m, I observed a female goat with one newborn young 3 m above the highway in coarse talus with juniper *(Juniperus* sp.*)* and bearberry *(Arctostaphylus uva-ursi)*. I estimated the young goat to be not more than a half day old, as it was having considerable difficulty walking. It stumbled frequently as its lower front leg joints were not yet strong enough to hold its full weight. Upon noticing the vehicle the nanny slowly and deliberately climbed up the talus slope looking back over its shoulder frequently at the struggling kid which could not negotiate the grade. The nanny did not show any aggression. The kid bleated repeatedly while the female was silent. Apparently realizing that the kid could not follow, the female stopped 3 m upslope of the young and commenced pawing at and feeding on bearberry. The kid eventually reached the nanny and suckled for approximately 20 seconds after which it pawed the ground lightly in apparent mimicry of the female's feeding behaviour. I left the vicinity shortly after to avoid further disturbance.

Although the birth of the goat in this type of habitat is not overly significant in itself, the proximity to the roadway and the aloof behaviour of the nanny raises questions.

McFetridge (1977) noted that Mountain Goats typically bear their young in rugged, cliff areas and travel away from these areas to feed only after the kid has attained enough strength and coordination to follow. Although I could not estimate the exact age of the nanny, it appeared to be a young adult. It is possible that this was the first young of this particular female and that its inexperience led to the misplaced birth.

This observation was made while I was under contract to the Canadian Wildlife Service as part of the Banff-Jasper Biophysical Wildlife Inventory. I thank Geoff Holroyd, Canadian Wildlife Service for comments on earlier drafts of this note.

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FLOWERING PLANTS IN BLOOM 25 JULY 1980 AT WHITEHORSE CREEK, CARDINAL RIVER DIVIDE AND PROSPECT MOUNTAIN, ALBERTA

Compiled by Margaret Lewis
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Felwort *(Gentiana arctophila)*
Tall Larkspur *(Delphinium glaucum)*
Lungwort *(Mertensia paniculata)*
Yarrow *(Achillea nigiescens)*
Northern Bedstraw *(Galium boreale)*
Fireweed *(Epilobium augustifolium)*
Heart-leaved Arnica *(Arnica cordifolia)*
Rocky Mountain Goldenrod *(Solidago multiradiata)*
Hedysarum *(Hedysarum mackenzii)*
Yellow Mountain Avens *(Dryas drummondii)*
Grass-of-Parnassus *(Parnassia fimbriata)*
Smooth Aster ?
Monkshood *(Aconitum columbianum)*
Alpine Milk Vetch *(Astragalus alpinus)*
Blue Beardstongue *(Penstemon procerus)*
Broad-leaved Willow Herb *(Epilobium latifolium)*
Indian Paintbrush *(Castilleja miniata)*
Shrubby Cinquefoil *(Potentilla fruticosa)*
Cinquefoil *(Potentilla diversifolia)*
Sandwort *(Arenaria capillaris)* ?
Pink Everlasting *(Antennaria rosea)*
Cut-leaved Anemone *(Anemone multifida)*
Bearberry *(Arctostaphylos rubra)* ?
Rough Cinquefoil *(Potentilla norvegica)*
Bladder Locoweed *(Oxytropis podocarpa)*
Rose *(Rosa acicularis)*
Large-flowered Fleabane *(Erigeron grandiflorus)*
Golden Corydalis *(Corydalis aurea)*
Showy Locoweed *(Oxytropis splendens)*
Strawberry *(Fragaria glauca)*
Small-flowered Everlasting *(Antennaria media)*
Large-flowered False Dandelion *(Agoseris aurantiaea)*
Hawksweed *(Hieracium gracile)*
Mouse-earred Chickweed *(Cerastium earlei)*
Yellow Columbine *(Aquilegia flavescens)*
Bunchberry *(Cornus canadensis)*
One-flowered Wintergreen *(Moneses uniflora)*
One-sided Wintergreen *(Pyrola secunda)*
Pink Wintergreen *(Pyrola asarifolia)*
Twinflower *(Linnaea borealis)*
White Camus *(Zygadenus elegans)*
Rock Jasmine *(Androsace chamaejasme)*
Rock Cress *(Arabis lyallii)*
Ragwort *(Senecio pauciflorus)*
Umbrella Chickweed *(Stellaria umbellata)*

Arnica mollis
Alpine Harebell *(Campanula lasiocarpa)*
Prickly Saxifrage *(Saxifraga bronchialis* L. ssp. *austro-montana)*
Knotweed *(Polygonum viviparum)*
Bracted Green Orchid *(Habenaria viridis* spp. *bracteata)*
Bistort *(Polygonum bistortoides)*
Elephant's Head *(Pedicularis groenlandica)*
Blue Columbine *(Aquilegia jonesii)*
White Thistle *(Cirsium hookerianum)*
Prostrate Gentian *(Gentiana prostrata)*
Small Northern Bog Orchid *(Habenaria obtusata)*
White-flowered Mountain Avens *(Dryas hookeriana)*
Yellow Mountain Heath *(Phyllodoce glandulifera)*
Mountain Heather *(Cassiope mertensiana)*
Rocky Mountain White Heather *(Cassiope tetragona)*
Moss Campion *(Silene acaulis)*
Alpine Forget-me-not *(Myosotis alpestris)*
Lousewort *(Pedicularis contorta)*
Yellow Paintbrush *(Castilleja occidentalis)*
Arnica alpina
Bracted Lousewort *(Pedicularis bracteosa)*
Yellow Locoweed *(Oxytropis spicata)*
Alpine Speedwell *(Veronica alpina)*
Few-flowered Lousewort *(Pedicularis capitata)*
Yellow Rattle *(Rhinanthus crista-galli)*
Scorpion Weed *(Phacelia sericea)*
Eschscholtz Buttercup *(Rananculus eschscholtzii)*
Jacob's Ladder *(Polemonium pulcherrimum)*
Wormwood *(Artemisia michauxiana)*
Cow Parsnip *(Zizia aptera)*
Yellow Mountain Saxifrage *(Saxifraga aizoides)*
Red-stemmed Saxifrage *(Saxifraga lyallii)*
Mountain Sorrel *(Oxyria digyna)*
Saussurea densa
Epilobium hornemanni
Valerian *(Valeriana sitchensis)*
Oval-leaved Umbrella Plant *(Eriogonum ovalifolium)*
Moonwort *(Botrychium boreale)*
Coltsfoot *(Petasites hyperboreus)*
Sweet Cicely *(Osmorhiza obtusa)*
White Globe Flower *(Trollis albiflorus)*
False Hellebore *(Veratrum eschscholtzii)*
Blue-Eyed Grass *(Sisyrinchium augustifolium)*
Bladder Campion *(Melandrium attenuatum)*
Meadow Rue *(Thalictrum occidentale)*
Mustard ?

- 91 species

Observers: P. Assmann, D. Cuthiell, Mr. & Mrs. P. Demulder, M. Devin, N. Hambleton, C. Harper, J. Lange, J. Lee, M. Lewis (comp.), S. Lirondelli, T. Thormin, and M. Welling.

PROFILES ON ORGANIZATIONS WHOSE ACTIVITIES OVERLAP THOSE OF FAN: 4

AN ECLECTIC REPORT ON RECENT ACTIVITIES OF THE CALGARY-BANFF CHAPTER OF NPPAC[1]

by Stephen Herrero
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Welcome back from what I hope was a summer which included at least a few trips into the great parks and wild lands of Canada. Don't fret if you found moss growing behind your ears; next summer always has more sunny days. Hopefully those of you who are conservation minded to the point of dedicating time, energy or money to NPPAC or like organizations have returned with sufficient inspiration, determination or anger to carry on for another year. Maybe we need more people like the elderly lady who apparently came in off the streets to get out of the cold during the Lake Louise public hearings of 1972. The time was near mid-night and tempers both pro and con development had reached the point where a fistfight had broken out. It was the evening of the second day of the hearings and everyone was tired and not really listening to what people had to say. Even John Gordon, the senior ADM who chaired the meetings with gentlemanly regard for everyone, began to nod in his hard chair. The elderly lady listened for awhile, and then when it seemed that everyone had said everything that they had energy for that evening and John Gordon was about to adjourn the meeting, she stood up and asked to speak. Mr. Gordon was too polite to say no and the crowd was too numb. She delivered an emotional but clear 10 minute description of the beauties of the Lake Louise region and the desecration that would occur if it became a jet set resort spa. She had a feeling for nature and the mountains, so her last sentence stunned just about everyone... "I know that Lake Louise is a very beautiful region even though I've never been there." Rumor was that she was given an all-expense paid holiday to Lake Louise.

The Calgary/Banff Chapter of NPPAC tried to follow up on the inspiration given by this lady. We won another round, an important round, at Lake Louise last year. The low-growth development option which NPPAC did much to conceptualize and promote was adopted by John Fraser, the Minister of Environment, for Parks Canada. Victory for the forces of moderation in development! Accommodations were to be expanded quite significantly but without major building. Roads, sewage, garbage handling, and employee housing were all to be upgraded to the point where Lake Louise would look and function presentably and yet not overwhelm. Lake Louise was to become a Visitor Service Centre and not a Townsite. Having laboured on this issue since the Rocky Mountain Park hearings of 1969, NPPAC had a right to be proud and pleased. I was pleased until I drove through Lake Louise in early August and saw the five new tennis courts, three on the South side of the Trans-Canada and two on the North side. Three for the Lake Louise Inn guests; two for everyone else. Now as a card carrying member of the Elbow Park Tennis Club, I can't be accused of being anti-racket. Bjorn Borg is just as much a

[1] The Chairman's message to the Chapter for autumn 1980. For a profile on the Edmonton Chapter and general remarks on the organization see Elly de Jongh's article in the June issue of the Alberta Naturalist.

wonder in our house as elsewhere. But tennis courts at Lake Louise? Are these essential services? If so what other essential services might join them (the swimming pool is already there inside the Lake Louise Inn)--I'm very fond of roller coasters myself and Lake Louise has the terrain to make one second to nowhere else in the world. Keep watching - you may see it yet.

We won back a tiny bit of wilderness in Banff Park last year. The Redearth Creek fireroad was reclaimed above the Lost Horse Creek bridge. Reclamation did not go further as planned because of some effective lobbying by Mr. Bud Brewster who operates a lodge at Shadow Lake, which is partly serviced by the road.

Last year the Calgary-Banff chapter of NPPAC continued to meddle in Park affairs in places such as Kluane and Wood Buffalo even though most of us have never been there. We do have an idea of what we would like those places to be if ever we get there and excessive roads and gondolas (Kluane) and major power dams which might flood parklands (Wood Buffalo) are not part of our dream. Your executive laboured to inform Parks Canada and other relevant organizations about how we and hopefully most of you feel about such issues.

For those of you who believe that with the new and improved National Parks Policy adopted in 1979 that a new era of protection has now begun I have this previously unreported, unnoticed news item. Remember back in late May, just before the deluge started, when it was so dry that Smokey the Bear was hospitalized for overwork fighting fires? What usually happens during droughts, besides fires? If you guessed the development of plans to cut hay in parks like Waterton and Prince Albert, you are right. Did you really think that the new Parks Policy would protect us from haying in the parks because this is an act of resource harvest? Maybe it did, but I doubt it. Mother Nature and the rains went to work where Parks Canada may have been powerless in resisting the advances of other federal ministries. The Calgary -Banff Chapter angrily opposed the proposed haying and possible grazing, just as we did the last time this issue arose in 1977, when hay was actually cut in Prince Albert Park.

Have you ever gone to Banff Townsite and felt that development is totally out of hand and that buildings are growing everywhere like mushrooms after the summer rains? Several of us felt that way and so we are in the midst of a complicated series of correspondence and meetings on this and similar issues related to expansion of development in outlying areas where Parks Canada Policy says that development will not expand. Parks Canada has been very cooperative in trying to educate and assure us that what is happening is well planned and in the public good. It is one of those issues where I feel like the dust bowl farmer in John Steinbeck's Grapes of Wrath. He has just had his farm taken away from him for failure to meet the payments. He wants to find the guilty party and shoot them, only he can never find out who to shoot because the repossesser only works for the bank, and the banker only follows orders from the board of directors and the board of directors only... So it goes with expansion of the Banff Townsite, it is a force somewhat unto itself with the only culprit being economic opportunity. How do you shoot it?

Well maybe you shoot it by enlisting the help of Canada's Order of Merit winner Andy Russell. The Calgary/Banff chapter chairperson and the National Chapter executive have been working with Andy and a public minded advertising

firm to use Andy's image to help boost membership in NPPAC and to further the parks and wildlands idea. Macleans has donated space for an add or two, and on this encouraging note I end.

Ed. note: Reprinted with slight modification from the Newsletter, Calgary /Banff Chapter, NPPAC September, 1980:2-3.

ALBERTA BLUEBIRD TRAILS - 1978

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Sherwood Park, Alberta

1978 is the first year for which bluebird trails data are reported for the entire province. Results from previous years may be found in the Edmonton Naturalist for Edmonton and the Blue Jay and Pica for Calgary. Historical background on these trails and their establishment were reported in the Alberta Naturalist 10:64-67, 1980.

Table 1 summarizes the results. Mountain Bluebirds *(Sialia currucoides)* appear to be concentrated around Calgary and the central east part of the province. The Calgary group with 549 boxes have approximately one in five occupied by bluebirds. Pres Winter from Viking with 240 boxes averaged one pair for every four boxes, as I did for 68 boxes in the Edmonton area. The 24 contributors this year reported one pair per 5.78 boxes. The Calgary people fledged 410 young from 84 pair, an average of 4.9 young per nest. Pres Winter also reported the same results with 318 young from 64 pair. The group average was 4.24.

Each year, since we began this work in 1971, there have been interesting details to report. This year Pres Winter found one bluebird nest with seven pure white eggs. He banded the female and all seven young, which later fledged. He also reported one nest in which bluebird young fledged, then Tree Swallows *(Iridoprocne bicolor)*, followed by a Deer Mouse *(Peromyscus maniculatus)* occupant in the winter. Several people have reported boxes occupied by Tree Swallows in the spring, followed by wrens, and later occupied by Deer Mice over the winter.

Pat Clayton reported one box near Beaverhill Lake that contained year -round occupants. A mouse had a spring nest, followed by a House Sparrow *(Passer domesticus)*; then Tree Swallows fledged young in late summer. Finally a Deer Mouse moved in for the coming winter. Alex Bilesky reported a mouse that killed a Tree Swallow in one of his boxes east of Edmonton. In one of my boxes a Tree Swallow was killed by a Red Squirrel that later raised young in the box. Fred Coffee and Hardy Pletz also reported Red Squirrels *(Tamiasciurus hudsonicus)* using their boxes, and I had two squirrel nests in boxes. House Sparrows continued to plague the boxes, with 179 of the 1900 containing these interlopers. One has to admire the sparrows' tenacity; nothing can stand in their way. These pugnacious birds kill swallows regularly. Ed Lankoff and Pat Clayton each reported Tree Swallows killed this way. The only positive aspect of this is that we obtain banding returns from the dead swallows.

While we are inspecting boxes to determine their status, people often stop and enquire as to what is happening. This season Pat Clayton reported that an Alberta Fish and Wildlife officer stopped her to ask her what she was

doing. After detailed questioning and even more detailed answers, he told her now she could continue.

Some people report finding some very interesting things in the boxes. The Underhills, who have the boxes just south of Edmonton on Highway 2, reported finding a package of cigarettes placed on top of six Tree Swallow eggs. The cigarettes were removed. Later three young were fledged from this nest. Construction work had been going on near there, off and on all summer. They speculate that a workman had put his smokes in the box to keep them dry. Fred Coffee, with boxes north of Elk Island Park, also found a pack of cigarettes, with only one missing cigarette, in one of his boxes that contained the start of a nest.

Then there are sometimes very peculiar happenings. The Alex Bilesky's had one of their boxes set fire to and scorched. There was a small burned area around the tree on which the box was mounted. It appeared that a fire had been intentionally set below the box. Each year there are several boxes that have been shot up with rifles, and others with shotguns.

Several Tree Swallow nests had larger than normal clutches, with five to seven the average. Alex Bilesky reported one box with 13 eggs laid in just over a week. Later seven young fledged successfully. Ed Lankoff and Hardy Pletz each had nests of Tree Swallows in which eight eggs were laid and all eight young fledged. On the other hand, Pat Clayton reported Tree Swallows averaging fewer eggs per nest, with six being a large number this year.

Banding returns continue to encourage us. Hardy Pletz had a bluebird banded as a nestling in 1977 return to nest within 300 feet of its original home. Another of his bluebirds banded in 1977 as a nesting adult returned to nest in the same box in 1978. Hardy also reported that four adult Tree Swallows returned to nest in the same box in 1978 as they had nested in the year before. He also had four Tree Swallows return that had been banded in 1976 as adults. Alex Bilesky reported a Tree Swallow that returned to nest in the same box that it had nested in the three previous years, a four year record. Another of his Tree Swallows nested in one box for two years, then in an adjacent box for the next two years.

The above are but some of the things found on a bluebird trail. If you would like to participate, send your 1980 results to me this fall. Use the headings in the accompanying table, plus interesting happenings.

I would like to thank the following: Liz Bilesky for collecting much of the data and compiling most of it; contributors Alex Bilesky and family, Pat Clayton and family, Fred Coffee and family, Alf Cryderman, Bob Danner, Earl Erickson and the Stoney Plain Fish and Game, the Finlays, Mrs. V. Hauser, Mrs. Ross Kelly, Ed Lankoff and family, Lloyd Lohr, Duncan Mackintosh of Lethbridge Naturalists, Jack Park, Harold Pinel and John Riddell, Hardy Pletz, Donna Rasmussen, Soch, Don Stiles, Blake Stillings, the late Ken Trann who had done so much on the trails, with this his final year of results, the Underhills, the Van Michelins, Marg Walker, and Pres Winter.

TABLE 1

Summary of 1978 Alberta bluebird trails results

Number of boxes	1900
Miles of line (approx.)	931
Pairs of bluebirds	329
Successful bluebird nests	289
Bluebird eggs	1739
Bluebirds banded	753
Pairs of Tree Swallows	1120+
Successful Tree Swallow nests	976+
Tree Swallow eggs	6059+
Tree Swallow young fledged	4059+
Tree Swallows banded	863
House Sparrow nests	179
Wren nests	70
Boxes used more than once	194+
Vandalized	97
Boxes not used	66
Number of contributors	24

THE ALBERTA BLUEBIRD TRAIL REPORT - 1979

by J. Cam Finlay
Site 9, R.R.2
Sherwood Park, Alberta

There were only 19 respondents this year, down 5 from 1978, with reports on 186 fewer boxes. This lower number of participants resulted in decreased statistics in all categories as shown in Table 1. However when I compared the data from those who had reported for both years, the overall totals were almost identical for each year. Some respondents had more Mountain Bluebirds *(Sialia currucoides)* in 1979 and others had less than in 1978, generally with the same number of boxes.

As in past years there were interesting events to report. Andrew Stiles of Calgary had a pair of Tree Swallows *(Iridoprocne bicolor)* that raised five young of their own species to fledging, plus three young Mountain Bluebirds in the same box at the same time. It is interesting to speculate as to the effect of imprinting on these young bluebirds. Would they try to mate with Tree Swallows next year when they return? He also reported two other Tree Swallow nests with bluebird eggs. Earl Erickson of Stoney Plain Fish & Game reported one bluebird egg among Tree Swallow eggs in one nest.

Andrew Stiles noted one Tree Swallow nest with 13 eggs, but none hatched. Earl Erickson reported a Tree Swallow nest with 10 eggs. Both

clutches were probably cases of two females laying in one nest at the same time, or possibly after one clutch was completed, another female moved in and started laying.

Jack Park reported one box on his line east of Edmonton in which bluebirds nested three times in succession. The first two nesting attempts were successful, but on the third try the birds abandoned the nest. Bluebirds often nest twice in a season.

Pres Winter of Viking reported six white eggs in a bluebird nest, the second year in a row he found this situation. This could be the beginning of the evolution of white bluebird eggs. Most hole nesting birds have pure white eggs. Pres found one banded female that nested five miles from where he had banded her the year before as a nestling.

House Sparrows *(Passer domesticus)* continue to plague the trails. Myrna Pearman of Rimby reported two female Tree Swallows dead on eggs. One had the top of her head pecked in, the usual sign of a House Sparrow attack. We have found the best way to solve this situation other than by removing the sparrow is to move the box at least one mile away. Also, cut a hole in the top of the box to allow light in. Those who want a special sparrow trap that will catch the sparrow should use the one Hardy Pletz developed. Hardy is one of the most active Edmonton people. He banded 58 bluebirds this year, with Jack Park, also of Edmonton, a close second with 52.

Red Squirrels *(Tamiasciurus hudsonicus)* came to my trail this year in force. Two different females each took over a box. One killed a Tree Swallow and left the carcass amongst the nesting material. Each squirrel had three young.

House Sparrows and squirrels are not the only problem the native birds have. Man is still the number one enemy. I had two boxes shot up and destroyed this season. One other disappeared, and probably is now in some one's yard. These are the perennial problems; the fall pot shooter, not the true hunter who wouldn't touch the boxes, and the person who has just moved to an acreage and wants an easy bird house. Those on fence posts are so accessible. The local farmers who are proud of "their" boxes, try and look after them but as newcomers enter the district, people who also "borrow" garbage cans as happened to us recently, boxes disappear and then we note them in a yard. I once lost eight boxes on a line east of Edmonton. A few weeks later near the end of this stretch we saw several boxes that looked like the missing ones, in the yard of a new acreage dweller. We left that area to his "new" boxes and moved the line two miles away.

I would like to thank the following contributors for providing the data: from Edmonton: the Bileskys, the Claytons, the Coffeys, Alf Cryderman, Bob Danner, the Finlays, Ed Lankoff, Jack Park, Hardy Pletz, the Underhills, Marg Walker, and the members of the Stoney Plain Fish and Game; from Viking: Pres Winter; from Rosalind: Bonnie Hauser; Duncan MacIntosh from Lethbridge; Myrna Pearman from Rimby; from Calgary: Andrew Stiles, Don Stiles, Blake Stillings, and many more helpers who were not named on the information sent in. Marian and Bill Reynolds provided very able assistance to me on my section of the trail. A very special thanks to Liz Bilesky, who gathered these data together and who kept after people and spent many hours on the telephone. These are the people who are bringing Mountain Bluebirds back to Alberta.

TABLE 1

Data on Alberta bluebird boxes 1978 and 1979

	1978	1979
Number of boxes	1900	1714
Miles of line (approx.)	931	852
Pairs of Mtn. Bluebirds	329	286
Successful Mtn. Bluebird nest	289	254
Mtn. Bluebird eggs	1739	1473+
Mtn. Bluebird young fledged	1394	1216
Mtn. Bluebirds banded	753	528
Pairs of Tree Swallows	1120+	1074+
Successful Tree Swallow nests	976+	826+
Tree Swallow eggs	6059+	5000+
Tree Swallow young fledged	4059+	4286+
Tree Swallows banded	863	914
House Sparrow nests	179	112
Wren nests	70	50
Boxes used more than once	194+	106
Vandalized	97	116
Boxes not used	66	101
Number of contributors	24	19

A REPORT TO F.A.N. FROM THE FORTY-FOURTH FEDERAL-PROVINCIAL WILDLIFE CONFERENCE OTTAWA, ONTARIO 24-27 JUNE 1980

by Maxine O'Riordan
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As a representative of F.A.N. and a guest of the Alberta Fish and Wildlife Division, I appreciated the opportunity to attend the Conference. The Conference was smoothly organized and wide-ranging. I also enjoyed the social activities, which consisted of a cocktail reception and private museum showing, a moonlight cruise and dinner on the Ottawa River, and a day-long boat tour of the Thousand Islands.

Previous to the Conference, we had been given the annual reports of the Wildlife Branch of the Federal Government, most of the Provinces and several non-government agencies. These proved to be valuable background reading to acquaint one's self with objectives and priorities. Alberta did not circulate such a statement. In a national publication entitled Canadian Wildlife Administration Vol. VI, 1980 Alberta included an organizational chart of their Fish and Wildlife Division, pointing out somewhat wistfully their proportionately small niche within a large renewable/non-renewable resource development

department. So, conspicuous by its absence was any statement regarding any priorities or philosophical positions. In a setting where one could compare our situation with other province's achievements, this was regrettable.

The Conference opened with a review of existing policy statements of the U.S. Fish and Wildlife Service, Canadian Wildlife Service, a Provincial Policy Status Report, and annual reports from the Canadian Wildlife Federation, Canadian Nature Federation, Ducks Unlimited (Canada) and National Indian Brotherhood. Committees were appointed and guests introduced. Because of malfunctioning aircraft, I missed this first half day, and regretted missing the opportunity to identify other naturalist guests.

Last year a decision had been made to draft a national policy concerning wildlife management, and so the whole thrust of the remaining conference was the gathering of statements and a search for consensus on this topic.

Four workshops were held: (1) wildlife (2) habitat (3) resource users (4) resource managers. We were able to participate in two of these. Chairmen brought the stuff and substance of each workshop to general assembly. At each step of the proceedings, ample opportunity was given for questions, answers and discussion. National priorities and strategies for the 1980's, a personal perspective was the format for a whole afternoon when we heard from:

A. A wildlife manager - all interested segments of society must get a coalition together and buy critical wildlife areas.
B. A Manitoba politican - management of wildlife must be more of a public issue to combat powerful industry users influence on government (the vote is the thing).
C. A deputy minister from Ontario who felt a formulation of national policy was a waste of time as it could not be implemented because of regionality.
D. A Ducks Unlimited officer - call for money to implement habitat on private land.
E. Dr. Patrick Moore from Greenpeace (now we did set the cat among the pigeons) - a very forceful speech.
   Greenpeace's current thrust is for protection of large terrestrial mammals; wildlife management seems to mean hunt and trap and kill using various euphemisms, e.g. harvest
   animals have rights and intrinsic values
   Greenpeace opposes trophy hunting and non-residency hunting
   ANIMALS SHOULD DIE ONLY FOR A COMPELLING REASON
F. A Canadian Wildlife Manager gave the very alarming statistics of habitat loss. He felt it imperative that groups get a workable committee together to get implementation of habitat preservation. Be missionaries, he said, not monks - all levels of society must cut bureaucracy and get going.

In skimming my notes, I came across some recurring concepts that might be useful to pass along in an unstructured way:

These are the terms I kept hearing:

environmental ombudsman / species must not become extinct
consider eco-system as a whole / non-game species
consumptive and non-consumptive users
tax incentives to retain habitat / intrinsic value of animals
sharply declining numbers of animals
better environmental impact studies / insufficient data
accountability / competing uses, recreation, industry, etc.

In summation, then, I will close with some personal perspectives. I had an opportunity for some in-put regarding abuse of land by private owners, the rights of animals, and a stronger partnership of naturalists and civil servants in the face of intransigent politicians. I was impressed with the calibre of people in the respective wildlife services, and their dedication to wildlife. I think it is extremely important for naturalists to become familiar with the official infrastructure, and important to "maintain a presence" among all the other users.

GRAVEL BAR DEVELOPMENT IN THE OLDMAN RIVER

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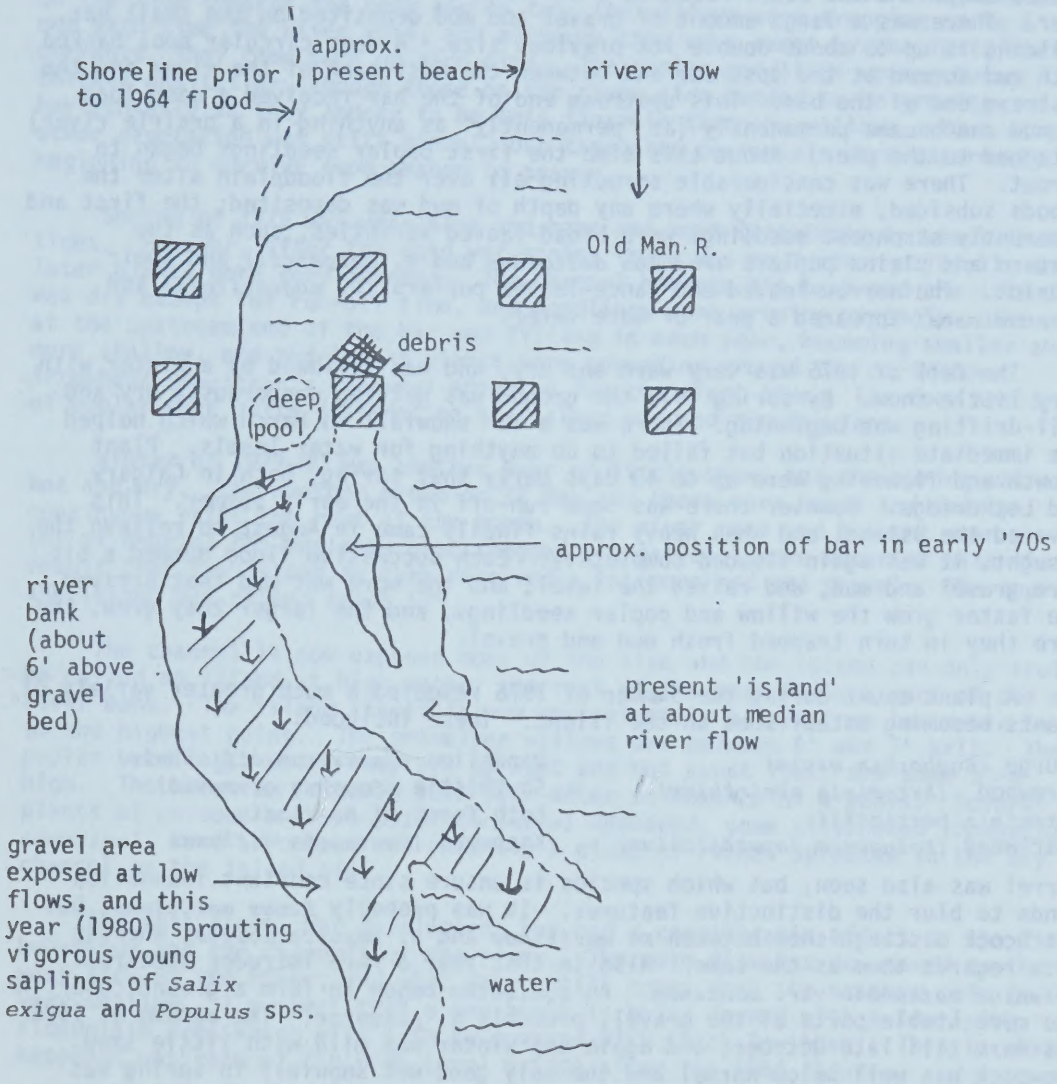
There are few geological processes that can be observed and studied in the course of a lifetime, and therefore those that can are particularly fascinating. Few of us ever see a new volcanic island or a major landslide, but many can observe the streambed changes of a mountain-born prairie river. What follows is a brief description of the development of gravel into a major bar and thence into an island over a period of ten years, and an outline of the vegetational succession on the bar.

The Oldman River at Lethbridge has an extremely variable level due primarily to spring run-off, but also prompted by heavy summer rains in the mountains, and occasionally by deep wet snowfalls in spring and autumn. About once every eleven years there seems to come an unusually high water which partially covers the floodplain. In 1902 and in 1908, and again in 1953 and 1975, the floods filled the entire valley from side to side. This is known to the engineers as a 70 year flood, a curious term in view of the dates. The river is a 'wild' river, meaning that it is not constant within its banks. Aerial photos of Lethbridge show many old streambeds and meanders, and early sketches of the city, when it was still mostly in the valley and known as Coalbanks, show the river as very different from what we see today.

The High Level Bridge is carried across the river on a series of concrete piers which tend to trap debris and logs at high water. Early in the 1970s a build-up of debris began to take place on the upstream side of the most easterly pier in the normal water channel. Beaver *(Castor canadensis)* found the pile of debris a convenient foundation for a lodge and started to enlarge the pile and tunnel into it. They also anchored winter food rafts upstream of the bridge, these rafts in turn contributing to the enlargement. As a result of this accumulation, a small gravel bar began to form downstream of the pier. For the first two or three years this bar was under water except at times of very low water. By about 1973-1974, the bar was exposed except at high water, and this was when it first really came to my notice as a development worth watching. It was still an island at all water levels and not yet attached to the pier.

About this time the first plants began to appear: a few short-season annuals such as mustard, a few tomato plants (at that time the primary sewage treatment plant emptied into the river above the bridge), and some gravelbar willow seedlings *(Salix exigua)*.

In 1975 came the "70-year flood." The valley filled from side to side,


approx.
present beach
Shoreline prior
to 1964 flood
river flow
Old Man R.
debris
deep
pool
approx. position of bar in early '70s
river
bank
(about
6' above
gravel
bed)
present 'island'
at about median
river flow
gravel area
exposed at low
flows, and this
year (1980) sprouting
vigorous young
saplings of *Salix*
exigua and *Populus* sps.
water

and all beaver lodges in the valley, including the one on the pier, were washed away. As the water receded, a new load of debris and logs caught on the pier. There was a large amount of gravel and mud deposited on the small bar, building it up to about double its previous size. A deep circular pool banked with mud formed at the upstream end between the east bank of the river and the upstream end of the bar. This upstream end of the bar received a deep load of mud and became permanently (as 'permanently' as anything in a prairie river) attached to the pier. About this time the first poplar seedlings began to sprout. There was considerable sprouting all over the floodplain after the floods subsided, especially where any depth of mud was deposited; the first and apparently strongest seedlings were broad-leaved varieties, such as the eastern and plains poplars *(Populus deltoides* and *P. sargentii)* and their hybrids. The narrow-leaved and lance-leaved poplars *(P. angustifolia* and *P. acuminata)* appeared a year or more later.

The fall of 1975 was very warm and dry, and was followed by a winter with very little snow. By spring 1976 the ground was getting dangerously dry and soil-drifting was beginning. There was a 12" snowfall in March which helped the immediate situation but failed to do anything for water levels. Plant growth and flowering were up to 43 days early that spring, both in Calgary and Lethbridge. However there was some run-off in the early summer. This covered the island, and when heavy rains finally came in August to relieve the drought, it was again flooded completely. Each successive flood dumped a bit more gravel and mud, and raised the level; and the more wet mud that arrived, the faster grew the willow and poplar seedlings, and the larger they grew, the more they in turn trapped fresh mud and gravel.

A plant count during the summer of 1976 revealed a much greater variety of plants becoming established on the island. These included:

Spurge *(Euphorbia esula)*
Wormwood *(Artemisia absinthium)*
Artemisia herriottii
Smartweed *(Polygonum lapathifolium)*
Dandelion *(Taraxacum officinale)*
Sowthistle *(Sonchus arvensis)*
Both forms of *Melilotis*
Knapweed *(Centaurea diffusa)*

Sorrel was also seen, but which species is unsure since constant inundation tends to blur the distinctive features. It was probably *Rumex maritimus*, but Hitchcock distinguishes between *R. maritimus* and *R. persicarioides*, whereas Moss regards them as the same. Also in that year a rare intruder appeared: *Helenium autumnale* var. *montanum*. An *Equisetum* began to form a ground cover in the more stable parts of the gravel, probably *E. palustre*. The autumn of 1976 was warm till late October, and again the winter was mild with little snow. Snowpack was well below normal and the only good wet snowfall in spring was quite inadequate to supply summer moisture. That year (1977) the island was exposed all year long for the first time. A number of mud-loving plants appeared:

Beggarticks *(Bidens cernua)*
Indian hemp *(Apocynum cannabinum)*
Creeping buttercup *(Ranunculus cymbalaria)*
Cursed crowfoot *(Ranunculus sceleratus)*

Prickly lettuce *(Lactuca serriola)* and *Silene cserei* were growing in the drier spots on the top of the island. During 1976 and 1977 the channel between the river bank and the island had been steadily filling with gravel, and in that dry year willow seedlings and annuals started to sprout. This year, too, the island was a part of the river bank all season without any water flow-through.

The winter of 1977-78 was very cold with few chinooks, but there was not very much snow. We had 10 days of continuous rain and wet snow in April, and the river rose suddenly on 16 May. There was a second rising in mid-July.

By this time the bar was a true island with gravel on the river side, and mud on the side towards the bank and on top; the willows were trapping up to 6" of mud each time the river rose, and although they were swept by the fast-flowing currents, they came back up each time. The poplar seedlings were growing thicker and taller, though those on the river side tended to be growing horizontally as they appear to be less flexible than the willows. Most of the other vegetation was still annual, but taprooted perennials were apparently beginning to survive from season to season.

Spring of 1979 was very slow and came and went tantalizingly about three times. However, after the cold wet spring there was no further rainfall, and later plants were very dwarfed. The channel between the bank and the island was dry except for run-off time, and seedlings were growing strongly. The pool at the upstream end of the bar was filling in each year, becoming smaller and more shallow, and mud-loving plants were spreading around the perimeter. Arrowhead *(Sagittaria cuneata)* appeared for the first time. The four species of poplar were quite distinct on the island now and growing fast.

Winter of 1979-80 was another year of little snow, and the spring was hot and dry. The weather broke on 22 May and there were heavy and fairly continuous rains the rest of the month. The river rose and brought down a lot of debris; the upstream pier snagged a great deal more material with the result that the island in turn received a lot more mud and gravel. The top of the island was raised about 12".

The channel is now exposed most of the time and the island can only truly be called an island at high water; the rest of the year it is a part of the new river bank. The island itself is now approximately 5 feet from low water level to the highest point. The gravelbar willows are between 6' and 7' tall. The poplar seedlings, where they are upright and not swept flat, are some 3'-4' high. The helenium returned this year after an absence of 4 years. Several plants of coreopsis *(Coreopsis tinctoria)* appeared, some silverweed *(Potentilla anserina)*, more arrowhead and recently a clump of rushes sprouted in the dry channel on the island side.

All this gravel bar development has had a considerable effect on the flow behaviour and the channels of the river. The main flow has now moved to the west side of the river, and what water still comes down the eastern side is very shallow. I suspect that a new beach is being formed with a low-lying floodplain area which will soon be covered with thick low bush. This is what happened upstream of the High Level Bridge after the 1964 flood.

There is a postscript to these observations: the water is now down to the usual low pre-winter level and a small new ridge of gravel is just beaking the surface about 30 yards downstream of the bridge and some 20' west of the 'island.' The start of another 'island?' and of yet another beach? It may well be, but there is not much room for the river to move over now, as there is a large dyke built many years ago on the west side. Gravel leases in the area were revoked two years ago, so there will be no more commercial dredging. The next few years of observation should prove interesting.

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FAN SUMMER OUTING ON THE KOOTENAY PLAINS: 4, 5, 6, AND 7 JULY 1980

by Fred Schutz
R.R.2
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The skies were partly blue, the air was moderately warm until after sundown, the rain stayed away during the daylight hours, and the scenery of the upper North Saskatchewan River valley was superb.

Thirty-two people enjoyed the annual summer meet of the Federation of Alberta Naturalists, held this summer in one of Alberta's most beautiful mountain valleys. A few people came on Friday evening; most came on Saturday and stayed over to Sunday; half a dozen remained on the scene until Monday. The group camping area was scenically located beneath a 25 metre cliff, with a footpath along its crest that afforded a low altitude overview of the Kootenay Plains area.

The main hikes were to Siffleur Falls, about five kilometres and back, and up Two O'clock Creek to a stand of Douglas Fir and a magnificent viewpoint several hundred feet above the plains. Lesser trips led to a lacy waterfall beyond and overlooking the Indian ceremonial grounds, also a stunning viewpoint, and down Two O'clock Creek to the historic cabins and Indian cemetery and along the North Saskatchewan River.

The botanists among us were thrilled to discover and photograph a species of Broom Rape, an attractive parasitic flower growing in associatiion with sage on the open meadows. Many other interesting flowers were in bloom including Butterwort, Wild Blue Flax, Androsace or Rock-Jasmine, and Indian Paint-brush.

The birdwatchers were rewarded with a nest of fledgling Merlins in a spruce stand near the footbridge. Stands of Limber Pine were observed along the lower reaches of the Siffleur River and also along the North Saskatchewan. This is one of two locations for the species north of the Bow River.

This outing afforded people from all parts of the province an opportunity to observe at first hand this very special and fragile region that is worthy of our most careful protection.

NATURALISTS' BOOKSHELF

Birds of the Gainsborough-Lyleton Region by Richard W. Knapton. Special Publication No. 10. Saskatchewan Natural History Society, Box 1121, Regina, Saskatchewan. 72 pp. $3.00.

The Saskatchewan Natural History Society is to be complimented on publishing yet another "Birds of ..." regional study. This one covers the extreme southeast corner of Saskatchewan and the southwest corner of Manitoba. As the author, Dr. Richard Knapton, correctly points out, bird surveys have been published previously for areas within 70-80 km of this area (e.g., Moose Mountain and Turtle Mountain) but these regions are mainly aspen forests,

while Gainsborough-Lyleton is of the mixed grass biome.

The bulk of the volume is made up of species accounts. This is prefaced, however, with a good introduction to the area, two maps showing geographical features and locations, a history of ornithological work in the area, a statement on terms, a summary of Christmas Bird Counts at Lyleton 1971-1977 and a list of species found (or suspected) to be nesting in the area. I was glad to see that the terms of abundance and occurrence follow those of the Federation of New York State Bird Clubs. This same standard has been used by past SNHS Special Publication authors and makes for consistency.

The individual species accounts range in length from a single sentence for casual migrants (e.g., Red Knot, Buff-breasted Sandpiper, Blackburnian Warbler) to several paragraphs and a third of a page or more for common breeding species (e.g., Pintail, Gray Partridge, Mourning Dove, House Sparrow, Clay-colored Sparrow). Where possible, earliest and latest annual arrival and departure dates are given. For some nesting species, nest dates, contents and locations, fledging date and success are also given. For species which regularly occur but do not nest in the area, (e.g., Great Blue Heron, Double-crested Cormorent, etc.) nearest nesting areas are often given.

I was surprised to learn that there is a small feral breeding population of Wild Turkeys in the Lyleton area; they are included in the species account. Dr. Knapton rightfully remarks on the significance of nesting Orchard Orioles in the study area. Orchard Orioles were unknown in the area prior to 1969 and first nested in 1974. Documentation of the nesting of this species and the suspected nesting of other "eastern" species, Philadelphia Vireos and Dickcissels, makes this volume a particularly timely study.

The errors or negative aspects of the publication are too few to mention, although why people refer to the plural of a year or a decade of the 1930's or 1970's (rather than 1930s or 1970s) is beyond me!

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NATURALISTS' BOOKSHELF

A Nature Guide to Alberta. David A.E. Spalding (editor). Provincial Museum of Alberta Publication No. 5. 1980, Hurtig Publishers, Edmonton, 368 pp., $14.95 hard cover.

A Nature Guide to Alberta is intended to be "a regional guide to the natural history of the Province of Alberta, designed to help people interested in nature find places to enjoy it, and to help them find out more about what they see... comprehensible not just to the naturalist but to the teacher, tourist and outdoorsman." The text is arranged in four sections. The first part is introductory. The second part includes a series of short chapters covering such topics as the ecological regions and plant and animal groups found in Alberta. The third part, which forms the bulk of the book, is a detailed regional guide to 171 localities over the entire province. The localities are arranged following the National Topographic map system used in Canada. The end papers in the book show the relationship of the mapsheets to major topographic features and a key gives the page numbers on which these mapsheets appear in the text. The account of each locality in the text includes

a general description of the area, access to and facilities in the area, a discussion on the geology, flora and fauna, and in some instances, special features of the area and further readings. The final section of the book includes several appendices.

A book such as the Nature Guide fulfills a definite and practical need, especially considering recent increasing interest in all aspects of natural history. The Provincial Museum and the Federation of Alberta Naturalists are to be commended for their impetus in developing this timely book. As an aid to expand the horizons of knowledge of those interested in natural history, it accomplishes its primary intention well. Those who take the time to read the book will find much of what is written to be generally informative and often quite interesting. The photographs, for the most part, are superb, although at times the captions do not fit them too well and vice versa.

Having recently returned from a trip to southern Alberta where I used the guide to provide me with information on areas where I had not been before, I found the map indexing format used to locate areas to be quite workable. Once an area was located, the accompanying description provided numerous facts which would not be apparent to a casual observer. Most people should be able to use the system with ease.

The book does have a number of negative features. To quote from the guide itself "...full-scale publication should be preceded by rigorous (emphasis mine) editing of the entire text for balance and style...a final edit has as far as possible (emphasis mine) resolved remaining imbalances, filled gaps, and corrected remaining errors...Facts, scientific names, grammatical points, and spellings have been checked and crosschecked...names have been standardized (emphasis mine)..." It is all too easy to be critical, but after reading the book I have serious doubts that very much of what is quoted above was actually done. I get the impression that publication of the guide was rushed through so that the book could appear during Alberta's 75th Anniversary year. If this is the case, it is most regrettable. Much of the blame for the deficiencies in the book must lie at the doorstep of the Provincial Museum, although without their considerable help, the book may never have appeared in the first place. There are so many inconsistencies and outright errors in the book that its quality suffers because of them. The editing appears to be anything but rigorous, and the "as far as possible" final edit leaves much to be desired. The spelling of many scientific names is in error in the index and common names for the plants and butterflies have been anything but standardized. Of greatest concern are the instances (far too many to list here) where either the directions to a given locality or the indicated location on the mapsheet is in error. After reading the book I think it might better be titled How to Get Lost in Alberta. To keep a road map handy while reading the guide would not be a bad idea, although in many instances even that would not help. In a number of cases the Highway or Secondary Road numbers given in the text do not match those indicated on the mapsheet. I found it extremely frustrating to read an account of a given area giving the names of localities which I could find neither on the area mapsheet nor on a provincial road map. Not being able to find a locality mentioned in passing may be forgiven, but a locality mentioned three times in an area description should be located on the map. I understand that the insertion of maps was an afterthought when considering publication of the Nature Guide. If it was, it certainly shows.

The Ecological Zone Map on page 30 could be much better. The one used is inaccurate in many respects. Why are the "Foothills" and "Peatlands" singled out for special treatment amongst the "Natural Communities?" It would have

been better to include sections on all the ecological zones. In these sections, descriptions of the typical flora and fauna, geology, etc. could be given, avoiding unnecessary repetition which occurs in the individual areas section. This would also give the readers some recourse when they encounter a section which says, "Typical prairie birds are found in this area." Is someone from the east coast going to know what a "typical prairie bird" is? Each section should be able to stand alone without the reader wondering where to go when patronizing statements such as the above are encountered.

The "Flowering Plants" section definitely needs rewriting. Information given is fragmentary and repetitive. I found the section difficult to read and was unable to locate several of the common names used in this section in any of the reference books I checked. If algae, lichens, bryophytes and fungi are included in the book, why have the ferns, horsetails and club-mosses been omitted?

Personal opinions such as those which appear in the "Insects" section ("...few insect collections are ever complete and most are a terrible waste of time and life.") have no business being in a book such as the Nature Guide and should not be included.

Considering the high degree of interest in birds and the great amount of readily available local expertise, the "Birds" section is surprisingly poorly done. The section would benefit greatly from expansion and I see no reason why this was not done. As it stands, too much information is crammed into too small a space and the novice will have problems sorting out just which birds belong with which groups.

In many sections of the book there seems to be a preoccupation with emphasizing the spectacular and unusual flora and fauna of an area. While this is in itself not undesirable, it should not be done at the expense of the more commonplace. Both should be listed; the average visitor should not be left with the impression that the unusual should be expected. Seasonal description of the fauna is an excellent idea as not all people will visit these areas in the summer.

A greater attempt should have been made to standardize common names. Some imaginative common names creep into the text such as "barley pasture sagewort" on p.156. The preponderance of different common names for the same species (many of which are not even listed in the index!) only helps to confuse the novice. Personally, and for those out-of-province people with some botanical training and not familiar with the local common names, the need to know the common name before you can find the scientific name is frustrating. It would have been nice if scientific names were included below each illustration, as is done in National Geographic. This would eliminate a lot of the confusion regarding common names. The index, while being reasonably complete, is in need of reorganization to make it more easily usable. I could find almost everything I searched for in the index, but even after reading most of the book, it was rarely on the first try! I think most people would find it much easier to track down plants if they were listed together under their common grouping, i.e. listing the grasses together, the ferns together, the orchids together, etc. This would help to eliminate cases where species are listed with two or more common names in different places in the index.

Three obvious errors occur in the photographs (aside from the inclusion of some of questionable quality). The photograph on p.127 is of yellow lady's -slipper, not sparrow's egg lady's-slipper; the photograph on p.138 is upside

down; and, the picture on p.150 is of globe-flower, not alpine anemone. A list of detailed comments on the content of this book is being forwarded to the Provincial Museum so that subsequent editions of the book can be improved. I would encourage other readers to do likewise.

While this review may appear to be rather harsh, it is intended to make the reader aware of and be prepared for some of the book's shortcomings. The deficiencies in the book are not the result of FAN's involvement with it. Once the project was taken over by the Provincial Museum, input from FAN and its members was kept to a minimum. FAN had no influence on overall planning and layout, and what little input they had on editing was often ignored. FAN was never given the opportunity to comment on the illustrations, their captions or the index, even though offers to do so were made (C.D. Bird, pers. comm.). The book is definitely not a waste of time to read; those who do so will find much in it to educate and interest them. Correction of the errors (most of which need not have happened in the first place) in subsequent editions of the book will make it one of the best books of its kind available.

- J. Derek Johnson
Northern Forest Research Centre
Environment Canada
5320 - 122 Street
Edmonton, Alberta T6H 3S5

RECENT PUBLICATIONS ON THE NATURAL HISTORY OF ALBERTA

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by David M. Ealey and Martin K. McNicholl

Anonymous. 1980. The "early bird hike" "(sic) April 13th. Buffalo Lake Nat. Newsletter No. 16:1.

Anonymous. 1980. May 3-4 th. canoe trip to the Battle River. Buffalo Lake Nat. Newsletter No. 16:2.

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Anonymous. 1980. Sunday June 8th. Field trip to Duhamel. Buffalo Lake Nat. Newsletter No. 16:2.

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Armstrong, M. 1980. A strange bedfellow. Edmonton Nat. 8(1):13-14. - about a friendly weasel.

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Craig, E. 1980. Secretary's & recording secretary's bits. North. Nat. No. 51:2.

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Craig, E. 1980. Diary of 1980 May bird & mammal count by Trumpeter Swan Naturalists. North. Nat. No. 51:6-8.

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FAN AND CNF NEWS

Deadlines for Project Reports

1. Alberta Flowering Dates - 31 October 1980*
   Return to: Dr. Charles D. Bird
   Box 165
   Mirror, Alberta T0B 3C0

2. Alberta Christmas Bird Counts - 15 January 1981
   Mail to: Virginia Lang Young
   R.R. #1
   Busby, Alberta T0G 0H0
   - where full count is to be published elsewhere, indicate reference as it should be cited.

3. Species Count Day (May) - Birds and Mammals - 15 July 1980*
   Mail to: Allen N. Wiseley
   509 - 321 - 10 St. N.W.
   Calgary, Alberta T2N 1V7

4. Species Count Day (May) - Plants - 15 July 1980*
   Mail to: J. Derek Johnson
   Northern Forest Research Centre
   5320 - 122 Street
   Edmonton, Alberta T6H 3S5

5. Prairie Nest Records Scheme - 1 October 1980*
   Return to: Herbert W.R. Copland
   Manitoba Museum of Man & Nature
   190 Rupert Avenue
   Winnipeg, Manitoba R3B 0N2

* This report (i.e. all except the Christmas bird count) is now overdue. If you have not already submitted your report to the compiler, please do so immediately!

Christmas Bird Counts - Readers should receive this issue just prior to Christmas bird count season. If you wish to participate and are not sure of the rules or who compiles a count in your area, please contact Virginia (Lang) Young at R.R. #1, Busy, Alberta T0G 0H0.

Special Historical Issue, Alberta Naturalist - At the September 1980 meeting of the FAN board in Calgary, a decision was made to send the special historical issue to all paid-up members of FAN, but that the one-issue grace period allowed delinquent members would apply only to regular issues. Thus, if you have not paid your dues, you will not receive the historical issue.

FEDERATION OF ALBERTA NATURALISTS STANDING COMMITTEES

1. RESEARCH - Al Wiseley, Chairman and Derek Johnson

2. WILDERNESS, PARKS AND NATURAL AREAS - Mike McIvor, Chairman
   Don Stiles, Mike O'Shea and Earl Stamm

3. PUBLICATIONS - Pat Clayton, Chairman and John Powell

4. ENVIRONMENTAL EDUCATION - Mary Lore, Chairman, Myrna Pearman and Mary Bailey

5. ENDANGERED SPECIES - Maxine O'Riordan, Chairman
   Eric Smith (deceased), Lloyd Lohr and Mike O'Shea

6. FINANCE COMMITTEE - Dave Ealey, Chairman and Charles Harper

7. PUBLICITY COMMITTEE - Dorothy Dickson, Chairman and Dave Ealey

8. BY-LAWS AND CONSTITUTION - Harvey Gardner - Chairman

9. LAND USE COMMITTEE - Maryhelen Posey - Chairman
   Dorothy Broadbent, Fred Schutz

10. PUBLIC ADVISORY COMMITTEE - Dorothy Broadbent is the Representative
    Dave Ealey is the Alternate

    N.B. Advance notice required if neither is able to attend.

11. ALBERTA ECOLOGICAL SURVEY - John Powell is the Representative
    Charles Bird is the Alternate

12. FISH AND WILDLIFE - John Powell is the Representative
    Dave Ealey is the Alternate

13. CANADIAN NATURE FEDERATION representative - Mary Lore

14. FEDERAL-PROVINCIAL WILDLIFE CONFERENCE - Delegate: Maxine O'Riordan

15. ALBERTA ORNITHOLOGICAL RECORDS COMMITTEE: Chairman: Ian Halladay
    Jim Salt, Peter Sherrington

Annual General Meeting:

FAN's Annual General Meeting will take place from 7:00 PM Friday, 30 January 1981 through 3:00 PM Sunday, 1 February 1981, at Camp Caroline.

Rates:	Husband and wife	$71.50
	Individual adult	38.50
	Youth - age: 18-21	33.00
	13-17	27.50
	8-12	22.00
	3-7	16.00
	0-2	free
	- maximum/family	137.50

Bring own bedding
Meals @ 9:00 AM, 12:30 PM, 5:30 PM

Cheques for $10.00 deposit or full amount should be sent to the undersigned at Box 1472, Edmonton, Alberta T5J 2N5. - Charles Harper

Canadian Nature Federation News Release - 10 October 1980:

FEDERAL AND ONTARIO GOVERNMENTS CRITICIZED FOR ALLOWING EUROPEAN WILD DOGS INTO CANADA

Nature conservationists have strongly criticized the federal and Ontario governments for permitting fur ranchers to import 135 European Raccoon Dogs which could cause destruction of wildlife in Canada.

Rick Pratt, Canadian Nature Federation (CNF) spokesman, said the federal and provincial governments had agreed in principle, over a decade ago, to prohibit the import of exotic (foreign) wildlife. "I was appalled to learn they had never acted on their concerns through legislation," he said. "It is well known that exotic animals can successfully compete with native wildlife and eventually deplete their numbers through interbreeding or habitat destruction. It was irresponsible of the two governments to allow Raccoon Dogs to enter Ontario because no one knows what effect they could have on indigenous wild species such as foxes."

The CNF and the Ottawa Field-Naturalists' Club are asking the governments to compensate the ranchers, send the Raccoon Dogs back to Finland and pass strict laws which would prevent a similar incident. They fear that escaped or released Raccoon Dogs would thrive in Ontario. In Europe, Raccoon Dogs eat ground-nesting game birds, grain and fruit crops. There are reports of Raccoon Dogs attacking chickens in Russia.

"The onus should be on the importer to demonstrate that foreign animals would not be harmful either now or in the future," said Pratt.

He gave several examples of how the introduction of exotic animals into other countries caused problems. Starlings were first brought to North America in the late 1800s. Now they cause millions of dollars worth of damage to agricultural crops each year. They have also displaced native birds, such as bluebirds. In Australia, the import of rabbits caused declines in domestic livestock.

The Raccoon Dogs were brought into Canada by an Ontario fur rancher to be bred for their valuable pelt. Only health factors currently govern importation of common foreign animals.

Planning Meeting of Environmental Associations - For years environmental associations have discussed the importance of joining forces to express our support on certain issues in the hope that our very numbers would have some impact on legislative decisions regarding use and abuse of the environment. This idea sounds great, but it is not so simple to organize a type of umbrella association without having it become slow, cumbersome and inefficient. We need everyone's input and we need the information fast with quick action, so that the input is on time.

The Alberta Wilderness Association (A.W.A.) distributed information regarding the need for an umbrella or coalition type of organization and we met in Red Deer on Sat. 27 Sept. 1980 at Red Deer College. Of the 42 groups that had been contacted, representatives from 25 appeared. Several FAN directors and other prominent naturalists were present. The meeting was

chaired by Ray Rasmussen, A.W.A., Edmonton and he kept things moving so that input could be received from everyone.

General issues were the use of land, air, water and the effect of this use on all forms of life. Andy Russell reminded us that the key issue was the use of habitat and that we should all be concerned as it affects humans as well.

Specific issues were nuclear power, water power, distribution of water, use of land for agriculture and wilderness, wild rivers, environmental education, all forms of energy - and the economic policies of government.

Much discussion followed and the majority felt that a loosely knit or unregistered coalition type of administration would be more effective, rather than a constitutional type of organizational structure - it was agreed that information and action were most important.

Result: A steering committee was formed to report back to us some time later. Write your concerns to Ray Rasmussen, A.W.A., 7403 - 105A St., Edmonton, T6E 4V2 or phone 433-7574. On this committee are Brian Staszinski, A.W.A., Dorothy Broadbent, F.A.N. and four others from Edmonton.

It was a most worthwhile session and it is hoped issues can be taken quickly to the government. We have been disillusioned with the E.C.A., but a legislative member assures me that the cabinet do listen to the E.C.A.'s advice and recommendations. But do they always act on it, we should ask.

- Mary S. Lore

THE PRESIDENT'S MESSAGE

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by Mary S. Lore
1621 - 4th St. N.W.
Calgary, Alberta T2M 2Z1

The September issue of the Alberta Naturalist was enhanced by very fine photographs which were well produced. The Editor and editorial staff are to be commended for the splendid results they are producing for F.A.N. readers. Have you approached your school library or community library to see if they are on the subscription list? This is one essential tool in environmental education for all the people of Alberta - rural and urban.

If the benefits of environmental education are going to influence future decision making, we must make our demands for compulsory environmental education in elementary and junior high schools known to all of our local Boards of elected trustees and the Department of Education minister. It is all very well to make bursaries available to teachers, but teachers will not have the opportunity to instruct students with knowledge and techniques of maintaining an ecologically sound environment if parents, trustees and the DEPARTMENT OF EDUCATION do not provide the education.

Our September/80 business meeting, field trips, debate on enjoyment of the environment versus our responsibility to the environment, hosted by the Calgary Field Naturalists Society under the capable directorship of Dorothy Dickson, was a huge success and we extend our sincere thanks to all who made it so successful. Seventy plus people attended the various functions. F.A.N.'s

tenth anniversary was nicely celebrated by a number of lovely birthday cakes on hand for the evening meal - thanks to all. A number of F.A.N. and C.F.N.S. members assisted with the Calgary clean-up the river project on the Sunday. It is appreciated when those from Edmonton and Lethbridge take pride in helping us clean-up Calgary. Dave Ealey deserves a gold star for his rescue of a frightened cat from the treetops.

I am sorry to report that F.A.N. has lost a fine director and a good friend - Eric Smith, of Stettler, and the Buffalo Lake Naturalists, was called to his heavenly reward on 7 October after a two year valiant battle with cancer. Eric was a mechanic by vocation, who enjoyed his rock club and the things of nature as hobbies. It has been our priviledge to have known and worked with Eric, and the world is a better place because Eric has helped make it so. To Barbara Smith and the children, we extend our sympathy.

Duncan Macintosh, past president of the Lethbridge Naturalists and a most energetic and enthusiastic member of the Southern Alberta Mountain Bluebird Trail had requested financial assistance for out-of-pocket expenditures in connection with building bluebird boxes last March. It was rejected as a F.A.N. sponsored project at the May/80 meeting. However, at the September/80 business meeting provision was made for F.A.N. members to donate to a Bluebird Trail fund through F.A.N. as a charitable donation, and these donations will be placed in a fund and used to reimburse those people with out-of-pocket expenses for the nails, lumber and glue used in building bluebird boxes. I asked Duncan to give us an idea of the expenditures involved and a cost of 380 new houses Nov/Jan last was $205.00. Each one of us has a splendid opportunity to help with Bluebird Trails by donating $5.00, $10.00 or $15.00 to this fund through F.A.N. when we renew our memberships, or just sit down and send a cheque for this project off to F.A.N.'s treasurer. Read the splendid report on this trail in the March 1981 Alberta Naturalist.

Diane Pachal will be with us until Dec/80 and is doing valuable work preparing briefs and dealing with current environmental issues - again funds are needed in order to keep Diane on the payroll - it seems to me we are working in the right direction by having an environmental co-ordinator for A.W.A., Sierra Club, N.P.P.A.C. and F.A.N.

One of the positive projects the above groups have co-ordinated and supported along with the Alberta Fish and Game Association and the Alberta Ecological Survey are petitions to designate and preserve a comprehensive system of ecological reserves, wildlands and parks in Alberta. Some petition forms have been circulated during the last 18 months, resulting in about 5,000 signatures. We hope to obtain a few more thousand signatures so that the minister of lands will be impressed by our positive interest and do something constructive about it.

If you think hunter-training courses would be advisable for all beginning hunters, and your president of F.A.N. believes this would be a positive step, as does the president of Canadian Nature Federation, let the minister of public lands, the Hon. Bud Miller know your wishes.

The last two items may have been discussed by the Provincial Legislature by the time you receive this publication.

Vice-President Maryhelen Posey arranged a public hearing on Hazardous Waste disposal procedures on 2 October for the benefit of the public and those seeking the position of Alderman in the City of Calgary at the 15 October

election, but it was attended by the concerned and the converted and by no politicians. I must say I found it most informative and was impressed with the concern by the committee responsible for such a necessary function. Expedient action is essential, and most of us are blissfully ignorant and hence unconcerned.

There could be a symposium with public participation on the Interbasin Water Transfer in March in Red Deer - it seems the August/80 hearings were by governmental personnel - if you have any comments, phone Dorothy Broadbent.

The theme for the annual general meeting at Camp Caroline will be Endangered Species. Several speakers will be available for Saturday evening and Sunday morning. Arrangements are being made by Maxine O'Riordan and Allen Wiseley. I hope to see many of you Friday 30 January 1981 to Sunday, 1 February at Camp Caroline - see FAN and CNF News for particulars.

Be thinking, how can we be most effective in 1981? What are your concerns about the environment and where should F.A.N. be directing its advice and energies?

EDITOR'S PAGE

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by Martin K. McNicholl
128 Silvergrove Hill N.W.
Calgary, Alberta T3B 4Z5

The Alberta Naturalist continues to develop and (I hope) improve. Much of the credit for this goes to cooperative people who volunteer suggestions or material aid. The September issue was enhanced by the splendid photographs of Jim R. Salt, the result of a chance remark he made to me as I was leaving his Edmonton home after a visit there last July. He volunteered to supply photographs for articles, and I sent him a list of photos that might be appropriate for articles that had by then been edited. Shortly thereafter I received a package of photographs to keep on file for use when I need them. Thank you, Jim!

Another faithful contributor, Helene White, who has contributed several cover stories, as well as drawings for "fillers," has left Alberta for British Columbia. However, we haven't entirely lost her, as she has agreed to keep in touch. Best wishes, Helene.

A visit with Tim Myres to discuss his preface to the historical issue resulted in 2 immediate improvements. Starting with the September issue, every issue now has a by-line on the table of contents page, saying that the Alberta Naturalist is published by FAN and also will include a list of members on all FAN committees. Several other suggestions from Tim are under consideration.

The special historical issue may well be the first of a series of special issues. Policies on these are currently under discussion.

Dave Ealey is exploring a new printing process that will cost less and allow us to print colour prints in black and white without converting them to black and white prints first. If this proves workable, it will allow us to use photographs more without the delays caused by such conversions.

Not all suggestions are used. Virginia Maitland suggested that for the covers of the Alberta Naturalist we use one colour each season, the same colour each year signifying that period. While the FAN board could see merit in the suggestion, most prefer the shelving convenience of one colour cover throughout a given year. However, we appreciate the suggestion, and encourage constructive criticisms and suggestions from all our readers.

Jim Salt also suggested that we list Alberta Naturalist articles in the lists of Recent Literature. When I suggested that this would be redundant to our readers, he pointed out the ease it would make in finding pages of articles whose authors one has forgotten. We will not be listing these in each issue, but a list of the contents of the first 10 issues will be published in 1981, and a full list of contents published in the last issue each year from now on, as is done in many other journals. A 10-year index is also under consideration.

CLUB NEWS

Bow Valley Naturalists - We experienced a busy fall, working on our "State of the Park" brief, as well as hosting several guest speakers such as Morley Barrett and Dick Russell, who spoke on Pronghorn Antelopes and Endangered Species respectively.

Our winter program is as follows:

20 Dec/80	Banff/Canmore Christmas Bird Count
3 Jan/81	Bow Summit Christmas Bird Count
28 Jan/81	Ron Hooper, a Parks Canada planner will speak on wild rivers of western Canada.
25 Feb/81	Dr. George Scotter, Canadian Wildlife Service, will describe his recent exploration of wild areas in northern Canada surveying areas for potential National Parks and studying caribou.
25 March/81	Richard Fyfe, Canadian Wildlife Service, will be speaking on the Peregrine Falcon Rehabilitation Project. He will elaborate on the efforts to re-establish Peregrines in Alberta and particularly in the Kananaskis Country.

We still have copies of our "Vermilian Lakes" report available ($3.00 each). Orders may be sent to Bow Valley Naturalists, Box 1693, Banff, Alta. TOL OCO.

- Rhonda Markel

Calgary Field Naturalists' Society - September marked the beginning of the 1980-81 season of evening meetings. We meet at the Central Memorial Library at 7:45 PM on the third Wednesday each month and visitors are always most welcome. We are also again running a series of Audubon films on 16 January, 13 February and 20 March, details of which are available from Mary Lore.

We were glad to welcome nearly 70 people to the F.A.N. meeting which we hosted in September and thank the C.F.N.S. members who helped to make it a success. A special word of thanks, too, to the out-of-town F.A.N. members who gave up their Sunday morning to help the Calgarians pick up garbage on a stretch of the river bank in a 'River Clean-Up' organized by the Calgary Canoe Club.

Re-elected C.F.N.S. Executive members - Don Stiles (President), Cathy Osborne (Secretary) and Mike Battrum (Treasurer) are joined this year by Jim Posey as Vice-President. We thank retiring Board members Mike Rogers, Catherine Anne Reeveo and David Dickson for their work and welcome Dierdre Spencer, Loralei Byatt and Al Wiseley to the Board.

- Dorothy Dickson

Edmonton Bird Club - The Edmonton Bird Club has a full program of speakers and slide shows for the winter. Meetings are held at 20:15 in Room 245, Agriculture Building at the University of Alberta on the following nights: 21 Nov. and 19 Dec. 1980, and 20 Feb., 20 March and 24 April 1981. Exact dates for all speakers have not yet been determined, but speakers include Edgar Jones, Bob Turner and Ernie Wade. Our annual banquet will be held on 17 January at the Mayfair Golf and Country Club. Members of the new executive are: Past President - Dick Dekker, President - Ron McElhaney, Vice-President - Dave Ealey, Secretary - Peter Demulder, Treasurer - Jack Park, Program Director - Otto Hohn, Field Secretary - Bob Turner, Other Directors: Graham Chambers, George Evans, Stephanie Proudfood, Ed Telfer, and Tom Webb.

- David M. Ealey

Lethbridge Naturalist Society - Our bluebird project since its beginning has depended on small donations, free bird houses and the financial and volunteer work of Duncan Mackintosh and Gordon Chalmars. Big donations of money were few because no income tax receipt could be issued. Now we have through the action of the F.A.N. executive a chance to donate to this worthy cause. Cheques marked "Bluebird Project" should be sent to Dr. Charles Harper, Drama Department, University of Alberta, Edmonton, AB, T6G 2C9. (Editor's note: An article on the Lethbridge bluebird project will be published in the March 1981 A.N. - M.K.M.)

Teresa Dolman has completed the program schedule for the coming season and it looks like an interesting year ahead.

9 January 1981 - Recording and interpreting of bird songs by Bill Sharp

13 February 1981 - Grizzly Bear ecology in N.W.T. - John Nagy

13 March 1981 - Identifying the Compositae of plants - Dr. Frank Harper and Dr. Alan Roberts

10 April 1981 - Useful and poisonous plants in Alberta - Miss Julie Hrapko

- Hazel Ross

Other Clubs - No reports were received by 29 October from the other clubs, but once again I do have news of some. Newsletter 3(7), Oct. 1980 of the Edmonton Natural History Club contains news of plans of a field trip to Whitford Lake in October and an invitation to join EBC members on a trip to Beaverhills Lake in September. At their September meeting, Pat Halligan spoke on Kenya and Dewey Soper was awarded the Pimlott Award by CNF (see announcement in Notes & News, this issue). The best news is the resurrection of the Edmonton Naturalist, articles from which are listed in the recent literature compilation for this issue. The Red Deer River Naturalists opened their season with a banquet in late September at which Alberta Liberal Leader, Nick Taylor, spoke. They have recently become involved in attempts to reduce the impact of a proposed industry take-over of private land, which has been essentially a sanctuary for many years. The Northern Naturalist 51, July 1980 contains news of several activites of the Trumpeter Swan Naturalists' Society, including the May FAN

meeting. Editor Lorna Dahl reports large numbers of wasps at Wembley. Mary Shavalier from Alberta Environment met with the club at Lake Saskatoon Park in July to give advice on preparation of briefs. The meeting was marred by jet -boat noise. - M.K.M.

NOTES AND NEWS

Soper Receives Pimlott Award - FAN Honourary Member, Dr. J. Dewey Soper was presented the second annual Douglas H. Pimlott Conservation Award in Edmonton on 9 September 1980. The award was announced at the annual meeting of the Canadian Nature Federation in Winnipeg on 30 August. The award is administered by CNF, and was presented last year to Dr. Jennifer M. (Walker) Shay of Winnipeg, so has now gone twice to prairie residents. Dr. Soper was nominated by Dr. George Scotter, a former CNF president who lives in Edmonton. Soper is best known to Alberta naturalists for his books on the mammals of Alberta and the mammals of Waterton National Park, but has written extensively on birds and mammals in many parts of Canada, especially the prairie provinces and the Arctic. At 87 years of age, he is now a resident of Edmonton - M.K.M., based partly on a copy of Dr. Scotter's nomination and other information sent by CNF President, Diane Griffin.

Helene White Moves to B.C. - Our faithful artist, Helene White moved to Vernon, B.C. on 1 October 1980. We will miss Helene, who has always been generous with her time and talents, but sill hope to hear from her from time to time. We wish Helene the best in her new home, and a speedy recovery from a recent bout of rheumatoid arthritis. - M.K.M.

Mary Bailey Receives Award - FAN members will wish to join me in congratulating Lethbridge director, Mary Bailey, who was recently honoured with an award of merit from the Environmental and Outdoor Education Council of the Alberta Teachers' Association. In presenting the award, the council's President, Hugh Phillips, wrote to Mary:

"Dear Mary:

It gives me great pleasure to inform you that at the fifth annual conference of the Environmental and Outdoor Education Council, you were granted an Award of Merit.

This prestigious award is granted to those individuals who have given exemplary leadership and service in the field of environmental and outdoor education. By nomination, your name was highly recommended and in due course, the Awards Committee unanimously supported the Award of Merit to you.

On behalf of the Council and executive and membership, thank you for your dedicated and insightful commitment to the field of environmental and outdoor education."

Mary has been the liason person between the schools and a group of knowledgeable volunteers who have provided service to elementary science classes in the coulee area of Lethbridge. She developed a resource kit on coulee plants for grade 5 students, including plants laminated onto index cards. She is currently on contract to furnish the new Interpretive Centre (see Hall, 1980, Alberta Naturalist 10:56-59) with displays and to develop programme and trail proposals for the centre. - M.K.M., with thanks to Mary Lore for bringing the award to my attention, and Mary Bailey for providing the details.

Alberta and Saskatchewan Entomologists Hold Joint Meeting - The 1980 meeting of the Entomological Society of Alberta was to be held jointly with the Entomological Society of Saskatchewan 23-25 October 1980. Plans included a scientific program of submitted papers by members of both societies, annual business meetings, an invited paper by Dr. E.J. LeRou, Assistant Deputy Minister, Research Branch, Agriculture Canada on government policies in agricultural research and development in the coming decade, a prize for the best student presentation, and an informal mixer. - from the meeting notice letter, sent by M.Y. Steiner, Secretary-Treasurer, Entomological Society of Alberta.

Edgar T. Jones Exhibits Art - Edgar T. Jones, known to many Alberta naturalists for his Audubon screen tours and banding activities, is also a nature artist. Examples of his art are to be displayed this fall and early winter in various Edmonton centres, as well as Calgary and Fort McMurray. The cover for our special issue on the history of FAN and its corporate member clubs is a drawing of a Great Horned Owl by Eddie. - based on a list of art shows sent by E.T. Jones.

Elly de Jongh "Retires" - I find it hard to imagine the Edmonton Chapter of the National and Provincial Parks Association of Canada without the guiding hand of Elly de Jongh. For more than 10 years she was chapter secretary in name, but in reality was the mainstay on which the chapter operated, with her home used as the chapter address and executive meetings often held there. Elly could always be depended upon to be up to date on all issues. Now, according to the chapter newsletter (Vol. 13, No.1, Sept. 1980), Elly has finally resigned her position for a much needed break. With her dedication to environmental causes, I am sure we shall still hear of her. In the meantime, I am sure all Alberta naturalists will want to join me in adding our thanks to those of NPPAC members for her years of hard work. - M.K.M.

Dorothy Dickson Receives Award - Calgary FAN Director, Mrs. Dorothy Dickson, who organized the September FAN meeting and accompanying art show, was one of two recipients of Outstanding Service Awards of Outdoors Unlittered, announced in their May-June 1980 newsletter. According to the article, the award is given for outstanding service by an individual to the environment. Dorothy was a founding member of the Calgary Eco-Centre, a founding member of the Educational Resources Group in Calgary, and a member of the Alberta Conservation Authority, serving on several of its sub-committees. The award notice does not even mention her work for the Calgary Field Naturalists' Society or FAN, which, of course, merely add to her eligibility. FAN directors will find this a particularly appropriate time for her to receive such an award, as she shepherded several of us, including the President, Recording Secretary, and both Editors along a riverbank on a clean-up the day after the last FAN meeting (see Club News). The Calgary Eco-Centre which Dorothy helped in founding, was awarded an Award of Merit at the same time Dorothy received her award. Congratulations, Dorothy! - M.K.M., based partly on the article cited.

Bird Feeder Programme for Children - The Provincial Museum of Alberta, 12845 - 102 Avenue, Edmonton T5N 0M6 has a wide variety of permanent exhibitions, feature exhibitions, films, workshops and lecture series in history, culture and natural history. Included in their November programme is a Saturday morning session for children on building a bird feeder and making bird food recipes (22 Nov. 1980). - M.K.M., based on Nov. 1980 calendar of the museum.

Biological and Social Issues in Water Management: A Symposium - The Alberta Society of Professional Biologists is pleased to announce a Symposium, entitled

"Biological and Social Issues in Water Management," to be held on 28 and 29 April 1981 at the Edmonton Plaza Hotel, Edmonton, Alberta.

The symposium will examine critically the biological and social issues which must be considered when planning for water management. Papers to be presented will investigate the industrial water use, the jurisdictional framework for water use in the Prairie Provinces, the development of water resources, an international perspective of the problems of water management, and aspects of river basin planning. The biological and social consequences of existing or proposed water management schemes in a variety of water systems will be examined in detail, including the South Saskatchewan, Peace-Athabasca, Garrison, Qu'Appelle, and Skagit systems. Eminent speakers from universities, government, and private industry will be featured. The banquet speaker will be Dr. David Suzuki who will be speaking on the responsibility of professional biologists for resource management.

Date: 28 and 29 April 1981

Location: Edmonton Plaza Hotel
Edmonton, Alberta

Registration and further information:

The Secretary
Alberta Society of Professional Biologists
P.O. Box 566
Edmonton, Alberta
T5J 2K8

- D.C. Thompson, Publicity Chairman
1981 Symposium Committee
Alberta Society of Professional Biologists

CONSERVATION NEWS

New Manual on Management of Problem Wildlife in Alberta - FAN Vice-President, Maryhelen Posey, recently received a revised manual on the management of problem wildlife in Alberta. The manual is a joint project of the departments of Agriculture and of Energy and Natural Resources. First published in 1973, it was revised in 1979 and is sent to wildlife biologists in the Alberta government, Fish and Wildlife officers, problem wildlife staff, and various interest groups, such as FAN, but is not for general distribution. The manual consists of an outline of policy and background, followed by detailed policies and procedures for actions on ungulates, birds, furbearers and carnivores, rodents, rabies vectors, and special projects. Some of these chapters are divided into sub-groups. The manual will be held by Maxine O'Riordan, Chairman of FAN's Endangered Species Committee, for future reference. - M.K.M.

FAN Briefs on Hazardous Wastes, Calgary Power - FAN continues to present briefs to governments and other agencies on conservation issues. When possible, these will be published in the Alberta Naturalist so that our members are both aware of the issues and informed on the stands taken by FAN. In the last few months, our able Vice-President has presented two briefs on behalf of the federation. In June she presented a brief jointly with the Sierra Club of Western Canada at the ECA hearings into the management of hazardous wastes in Alberta. This brief is published in this issue at the end of Conservation News. In September, Maryhelen presented a brief to the Alberta Cabinet on behalf of FAN concerning

a route application by Calgary Power. This brief will be published in the March 1981 issue, again in the Conservation News section. Readers are welcome to comment on these briefs by way of letters to the Editor, and of course are always welcome to bring the Federation's attention to issues which should be addressed by FAN. - M.K.M.

What is the role of the ECA? - Alistair Crerar, Chairman of the Environment Council of Alberta (ECA) is said to be considering resigning from the ECA because of the Alberta Government's continued practice of ignoring recommendations from the ECA. In spite of the ECA's recommendations to the contrary, Environment Minister Jack Cookson recently announced that a dam will be built on the Oldman River near Pincher Creek. Dixon Thompson, one of the ECA's panel members for the hearings on water shortage problems in southern Alberta, has pointed out that the dam was not warranted from either an environmental or an economic point of view. The government has called the panel short-sighted in their recommendations but offered no technical information which supports such an allegation. Thus, the role of the ECA as an advisor to the government is being questioned. - M.K.M., based on September 1980 articles in the Calgary Herald supplied by Jennifer Hansen.

Fruit and Juice Cans Now Returnable - Fruit and juice cans up to 470 ml have been added to the Alberta beverage container recycling program, according to Outdoors Unlimited Newsletter May-June 1980. According to the note, about 85% of liquor and wine bottles purchased in Alberta in 1979 were returned, but not quite 50% of soft drink bottles. Readers should remember not to throw out juice cans from now on. - M.K.M.

Disturbance to Wildlife by Naturalists and Scientists - From time to time scientists have been asking how much effect their studies have on disturbing their study animal, especially birds. The literature on this issue is growing rapidly, as was emphasized to me when I summarized it for a recent planning document (in Cornell *et al.* 1980 listed in recent literature section, this issue). With this in mind, Joanna Burger, Vice-President of the Colonial Waterbird Group, organized a symposium on this topic for the group's recent meeting (October 1980) in Ottawa. The papers included documentation of disturbance and how it did or did not affect success of particular colonies, a summary of types of disturbance, and results of some experiments designed to reduce disturbance. For example, Michael Gochfeld has found that pulling a young tern's leg out from under the bird and placing a band on the leg without lifting up the bird results in a much reduced tendency for the tern to wander than by picking up the bird for banding. An elaborate, but simply constructed tunnel device was described by Mary Fitch and Gary Shugart for getting into the heart of a colony without causing the birds to flush. The papers in this symposium will be submitted to the editor of Colonial Waterbirds for publication.

In recent years a number of authors have pointed out that naturalists often cause disturbance to birds and other wildlife through activities not generally perceived as harmful. Generally these concerns have involved terrestrial wildlife, especially birds. Recently, however, Jaclyn Dorsey (Grey Whale News 1(3):8-9, 1980) has written an article, "Whale-watching the whales to death?" in which she raises the question of how much effect boat tours to watch whales have on the objects of admiration of the participants. At present, little is known about what effects naturalists do have on wildlife, but the fact that the question is being raised is the first step in addressing this important issue. - M.K.M., based partly on attendence

at the CWG meeting in Ottawa, partly on the whale article cited, and partly on previous reading.

Peregrines - a Come-Back on the East Coast? - The Peregrine Falcon has become a symbol of industrial pollution, with its drastic decline attributed to DDT. With DDT essentially banned throughout North America, they should recover, provided some other insiduous chemical doesn't get to them next. Although too early to announce a dramatic come-back, migration data on the North American east coast offer hope. In the report of the fall migration of 1979 (Amer. Birds 34:139-205, 1980), all four primarily east coast reporting regions report large numbers of Peregrines. The Northeastern Maritime region reported almost twice the numbers seen in the previous five fall seasons. The Hudson-Delaware region reported a "surge" of Peregrines, with every hawk watch station in the region recording its best season in recent years, and Cape May reporting that an encouraging 65% were immatures. The Middle Atlantic coast region reported its best year in history for reports of the species, with at least 196 new bandings and over 1000 sightings. An observer on Assateague Island, Maryland, who has just completed his tenth year of fall Peregrine research, believes the Peregrine has increased 148% in the last 5 years. The Southern Atlantic coast region called it "clearly a banner year" for Peregrines, which outnumbered the usually common Merlin. Results of the 1980 fall migration are eagerly awaited. - M.K.M.

THE MANAGEMENT OF HAZARDOUS WASTES IN ALBERTA

A Joint Presentation of

The Federation of Alberta Naturalists

and

The Sierra Club of Western Canada (Alberta Group)

to the Public Hearings of the

Environment Council of Alberta

presented by Mary-Helen Posey (FAN)

and Doug Harvey (SCWC)

June 1980

Mr. Chairman, Members of the Panel:

The Sierra Club was founded in 1892 in order to explore, enjoy and protect wildlands and wilderness, and has since grown to become one of the world's largest and most influential defenders of high standards of environmental quality for all human beings. The Federation of Alberta Naturalists was founded in 1970 as a province-wide organization of naturalist clubs, and now represents nine member groups spread over the province from Lethbridge to Grande Prairie.

Our joint submission arises out of our common objective: to work to restore the quality of the natural environment, and to maintain the integrity of ecosystems, both in Alberta and elsewhere.

Our brief attempts to present to the Environment Council of Alberta a number of recommendations regarding certain of the environmental and social aspects

of the management of hazardous wastes in the province. Prior to presenting our specific recommendations, we would like to emphasize four general statements of principle, as follows.

First, we feel very strongly that a proper facility for the treatment of hazardous wastes should be constructed without delay. Current methods of disposal, including surface and subsurface storage, legal dumping in landfill sites, illegal dumping in sewers, etc., are totally unacceptable from both social and environmental points of view, since the ultimate effect is to poison ourselves. Thus we fully agree that the need for proper management, including proper storage, transportation, handling, treatment, etc., is tantamount.

Secondly, it is our view that it is not humanly possible to design or construct a transportation and treatment system that will be totally safe or accident -free. Therefore, such transportation and treatment facilities should be designed, from the beginning, to anticipate an accidental spill or discharge, and to minimize the risk to human health and to human life, and to the environment, associated with such accidental spill or discharge.

Third, the operation of a treatment facility for hazardous wastes, including transportation of hazardous wastes to that facility, involves a risk to human life, to human health, and to the environment. For this reason, major decisions regarding operating standards, safety standards, emission standards, etc., must be made by elected representatives who can be held accountable for their decisions (i.e. not by administrative decision), and should be accessible to public review and input at all times.

Fourth, to us, the term, 'management of hazardous wastes' has a specific meaning, as follows: (a) a major objective of any management program should be to reduce, at the source, the volume of hazardous wastes which are produced in Alberta; and (b) management of hazardous wastes means treating such wastes in order to reduce an aggregate of unusable and hazardous materials into something that is useful to man (or at least not harmful or potentially harmful to the environment or man); management does not mean dumping of hazardous wastes into the air, water, soil, subsurface strata, etc.

Our specific recommendations are as follows:

LOCATION OF TREATMENT FACILITIES

> Treatment facilities should be located as close as is possible to the major source(s) of hazardous wastes (generally the larger urban centres).

A site which is located in close proximity to the major source(s) of hazardous wastes will offer a number of advantages/benefits, including: (1) the distance over which hazardous wastes must be transported, and hence the potential for spills and accidents during transportation, is minimized; (2) the motivation to maintain strict operating and safety standards, including emission standards will be higher if the facility is located close to an urban centre; (3) in the event of an accident, failure, or break-down, a variety of specialized emergency equipment and personnel will be close at hand; and (4) the source of wastes is generally also the source of workers required to construct and operate the treatment plants; the two should be located reasonably close to one another.

REFUSE/RECYCLING

We recommend that the province, through legislation and licensing, adopt two strategies to make hazardous wastes less hazardous: (a) reduce both the total volume of wastes produced, and the toxicity/corrosiveness of those wastes which are produced; and (b) take positive steps to encourage recycling/reuse of specific wastes.

In our view, the first objective of a rational management policy should be to reduce the volume of hazardous wastes at the source. This should be done by encouraging alternate production processes, as well as greater reuse/recycling of specific metals, compounds, elements, etc.

The volume of hazardous wastes which are produced could be reduced by offering specific financial incentives to major 'producers' to induce them to reduce the volume and/or toxicity of their wastes. In addition, we recommend that the province investigate the possibility of regulating the production of hazardous wastes by including clauses related to this aspect of the industrial process to the licensing requirements for each industry.

We further recommend that financial incentives (possibly in the form of tax write-offs) be used to encourage reuse/recycling; and that legislation (including regulations and licensing) be used to regulate access to raw materials on the basis of the degree to which the processes used minimize the production of hazardous wastes.

TRANSPORTATION

It is imperative that an improved process be implemented for the clean-up of hazardous wastes which enter surface and/or subsurface waters, particularly as a result of accidental spills.

Hazardous wastes should not be transported by road or by rail across the continental divide, or through any of the mountain national parks.

Hazardous wastes should be transported only in their least volatile or soluble form, and in a form which is compact, and easily and safely handled.

Transportation of hazardous wastes to the disposal facility is the weakest link in the chain with respect to potential accidents which could harm human beings and the environment. Our major concern regarding transportation of hazardous wastes is the effects of accidental spill or discharge upon plant and animal life, and upon human health. A spill on land is relatively easy to contain and clean up; we are more concerned, in this context, with the potential for damage and loss of life which could result from a spill into a river or lake. Special attention should be given to stream crossings by hazardous wastes carriers. Escort vehicles and other precautions should be taken at such crossings to reduce the risk of accidents which might result in spills into streams or lakes.

No transportation of hazardous wastes should be permitted along road or rail routes through the mountains. These routes parallel rivers which supply drinking and irrigation water for Alberta and ultimately most of the West. A spill of hazardous wastes into one of these streams could be catastrophic. For example, a ten-thousand gallon spill of polychlorinated biphenol (PCB) into a water body would require an amount of water equivalent to more than ten times the average annual discharge of the Bow River at Calgary to dilute it to the

US Environmental Protection Agency maximum permissable concentration (for aquatic life) of one part per billion (0.001 micrograms per litre).

In addition, it must be remembered that many hazardous wastes, including PCB's, are not readily water-soluble, and therefore such a spill would not simply "flow through" the Bow-South Saskatchewan River system. Rather, much of it would be taken up in transient 'storage' in river bottom sediments, and would therefore be slowly released over a period of many years. As we have recently seen in Manitoba, Ontario, and elsewhere, this type of spill can, and does, occur. Therefore, no hazardous wastes should be accepted from British Columbia should the proposed hazardous wastes plant eventually accept wastes from other provinces.

LEGISLATION

The province should begin immediately to ensure that all aspects of management of hazardous wastes, including transportation, storage, handling and treatment, are regulated by legislation.

Such legislation should ensure the following:

- clear identification of liability in the event of accident;
- adequate funding for enforcement of legislation;
- licensing of all producers of hazardous wastes;
- licensing of all means of transportation of hazardous wastes;
- standards adequate to ensure safe, clean operation of the treatment facility;
- identification of designated transportation routes;
- clear identification of which government departments are responsible for which aspects of hazardous wastes management;
- proper training and licensing of personnel involved in all aspects of handling and/or transporting hazardous wastes; and
- assistance to local authorities along transportation routes including funding as needed to develop and maintain staff and equipment to deal with accidents.

THE USER MUST PAY

Hazardous wastes may be defined as undesirable by-products of industrial and other production. The user of the desired product should be expected, and required, to pay the full costs of management and treatment of the undesirable by-products as well.

We feel that the market cost of any good or service should reflect the true cost of producing it, where the true cost is the sum of the cost to produce the desired good/service, plus the cost to adequately and properly treat the undesirable by-products. Ideally, of course, an attempt should be made (and perhaps required) to reduce the volume of undesirable by-products. If the costs of handling wastes were included in the price of the product, the market should encourage the effort to reduce the production of undesirable by-products (although we recognise that the market may not be able to do this, and therefore other incentives should also be considered).

SUB-SURFACE STORAGE

Under no circumstances should hazardous wastes be 'disposed of' below ground, including deep-well injection, or in waterbodies, including lakes, the ocean, ocean trenches, etc.

We now know enough about the earth and its geology, and the dynamics of these, to be able to state with certainty that there is literally no safe place in which to 'bury' hazardous wastes. Sooner or later what goes down must come up; and when it does come up, water, soil, plants and animals, and eventually human beings, will be exposed and/or contaminated. Such risks are simply not worth taking.

OPERATION AND DIVERSIFICATION

The Treatment facility should be proven to be safe, and within acceptable environmental standards, before any out-of-province wastes are accepted for treatment.

Once the treatment facility is proven safe, and within acceptable environmental standards, similar plants should be constructed in other parts of the province.

It is our understanding that only one treatment plant is being considered by the province. There are several dangers inherent in an approach which utilizes a single large facility to handle all wastes generated within the province (and perhaps elsewhere as well). The most obvious dangers are the following:

- increased transportation costs;
- increased risk of accident during transportation, which is in part a function of the distance over which wastes are transported;
- the lack of alternative treatment facilities in the event of accident or failure of the single treatment plant; i.e. wastes would have to be stockpiled; and
- the tendency to focus future industrial development near the facility, leading to greater economic and demographic imbalances in the province.

Thus at least two such plants should be considered.

INVENTORY AND RESEARCH

The province should maintain an up-to-date inventory of hazardous wastes, to include for each identified hazardous waste, information on (a) the volume and location; (b) the contents and nature of the hazard; and (c) the standard (if known) of safe exposure levels.

This inventory should include a semi-annual forecast of the anticipated total production and accumulation of hazardous wastes; such forecasts should be available for public scrutiny.

The province, in conjunction with the major producers of hazardous wastes, should establish a program of research which would have as its objectives (a) the development of better methods of disposal /neutralization, transportation, and clean-up following accidents, of hazardous wastes; and (b) the development of processes that minimize the production of hazardous wastes at the source.

IN CLOSING

We are pleased to have had an opportunity to comment upon a most critical problem for the health and well being of the environment, flora and fauna, and human population of this province. We hope that the Environment Council will find our comments useful and constructive, and that it will urge the government to place long-term considerations of environmental quality, the integrity of ecosystems, and the health and welfare of human beings above potential short term financial or economic gains related to the management of hazardous wastes.

JUNIOR NATURALISTS' SECTION

THE COUGAR

by Anthony Craig
Sweetgrass School
11351 - 31 Avenue
Edmonton

I love the Cougar and the Bison. Only if there are people who care will we be able to save the beautiful animals. Stop hunting. Stop polluting. Stop destroying the places they live. I wish the Cougar can be Alberta's animal.

THE COYOTE

by Becky Donaldson
Sweetgrass School
11351 - 31 Avenue
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The Coyotes are a part of the dog family. They live in Alberta. If you see one you will think it is the hill. The Coyotes eat mice, rabbits, gophers and other pests. The Coyote helps the farmer. The Coyotes can live near us. I think the Coyote should be Alberta's animal, because it helps the farmer and can live near us.

THE BUFFALO

By Treeha Bokhari
St. Clement School
7620 - Millwoods Rd. S.
Edmonton

I think the Buffalo should be Alberta's mammal emblem because before Alberta became part of Canada, the Buffalo roamed here. Alberta has been the Buffalo's home for a long time. The Buffalo provided the Indians with food, clothing, and shelter. I think we owe it a favour and therefore we should

repay it now by picking it as Alberta's mammal emblem.

One hundred years ago, there were thousands of these huge creatures called Buffalo or Bison. Most of them lived on the prairies, where Manitoba, Saskatchewan, and Alberta now are. They liked the plains, for the long grass was their food.

The Buffalo looks fierce. It is five or six feet high and about eleven feet long. Its head is big, and both males and females have horns. Above the shoulders of the Buffalo is a hump. Long, dark-brown hair grows on its head, shoulders, and its front legs. With the big head, the humps, and the long hair, the Buffalo looks much bigger at the front end than at the back. Baby buffalo, or calves, are born in the spring. When it is time for her calf to be born, the female goes off by herself. Usually she has one calf, but once in a while twins are born. In three or four days the calf is able to run about, and then the mother leads it back to join the herd.

The Buffalo did not have many enemies before the white man came to America. Wolves, however, killed the Buffalo, although some of the Wolves were often killed in the fight. With horns, and hooves, the Buffalo knew how to defend itself. When Wolves came upon a herd of Buffalo, the male Buffalo would form a circle around the cows and calves. Then the Wolves would have to try to get one of the animals off by itself.

Another enemy of the Buffalo was the Grizzly Bear. Today the Grizzly is found in the western mountains, but once it lived on the prairie too.

Indians hunted buffalo for food, and for skins. Buffalo skins made good clothing, and fine wigwams. Sometimes an Indian would put on a Buffalo skin that still had the head on it. Real Buffalo would think he was one of them, and would not run away. In this way he could get close enough to shoot some of the Buffalo.

During the summer, the Buffalo were attacked by flies. To drive these insects away, the Buffalo would roll in mud. The mud would form a coat over them, so the insects could not bite through. Insects, though, did not often bring about the death of a Buffalo.

However, none of the enemies of these huge animals were as dangerous as white men with guns. White men shot them by the thousands. The poor animals didn't have a chance.

The story of the Buffalo, or Bison has been sad, but it is not over yet. Today this creature has a safe life in parks, such as Elk Island National Park, so there will probably always be some Buffalo for us to see. However, never again will they roam the prairies free and wild.

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NATURAL LANDSCAPES PETITIONS

F.A.N., in conjunction with the Alberta Ecological Survey, Alberta Fish and Game Association, Alberta Wilderness Association, National and Provincial Parks Association of Alberta, and Sierra Club of Alberta, will be presenting the petitions for the "preservation of natural landscapes in Alberta" to the Provincial Legislature at the spring sitting in order to support planned ecological reserves legislation. Any outstanding petitions should be mailed to the Federation of Alberta Naturalists, preferably before the F.A.N. meeting at Camp Caroline, at the end of January 1981.

OVERHEARD

The screech of the Barn Owl

"Many a stalwart Scot may have quailed at the cry of the hoolet when heard under certain conditions, but it is a matter of history that the sons of that romantic land, when roused to enthusiasm by similar sounds from the national instrument, have performed deeds of personal valor..." - Thomas McIlwraith, 1894, "The birds of Ontario" 2nd ed., p.224.

Wildlife Management

"The best management is the least management that is sufficient to permit species to maintain populations viable over the long term" - Warren B. King, 1978, "Endangered birds/ management techniques for preserving threatened species" p.13.

Mankind on Planet Earth

"We are like a set of idiot children let loose with poison, saw, sickle, shotgun and rifles, in a complex and beautiful garden that we are slowly but surely turning into a barren and infertile desert." - Gerrald Durrel, 1972, "Catch me a Colubus," p.210.

Loon soup, Anyone?

"The flesh of the Loon is unfit for human food; it is rancid to the taste, and its odor is disgusting." - Jacob Studer, 1881, "The birds of North America" (reprinted in 1977 by Harrison House, New York).

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DEADLINES for submission of material for regular issues are: January 15, April 15; July 15; and October 15. Deadlines for research projects are published in each issue. Please include your mailing address. All maps and charts should be submitted on 8½ x 11" (or 8½ x 7") white bond. Please indicate in light pencil any data which are to be typed on charts, maps, etc. Black and white photographs, slides or drawings are welcomed.

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